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ABSTRACT

This collection of 12 essays is drawn from a May 1990 panel meeting in Paris, France in conjunction with a joint United Nations University/United Nations Educational, Scientific, and Cultural Organization project on "The Changing Role of the Universities." Papers are grouped into those on: the general role of the university, regional conceptions of the university, the economics of higher education, and strategies of learning. Essays include: (1) "The Idea of the University: Changing Roles, Current Crisis and Future Challenges" (Torsten Husen); (2) "Evolution of Universities" (Yash Pal); (3) "Universities in the Post-Industrial Society" (Edward W. Ploman); (4) "The Role of the University in Asia in the 21st Century" (Ungku A. Aziz); (5) "Higher Education in Africa" (T. L. Maliyamkono); (6)"Education for All in Latin America in the 21st Century and the Challenges of External Indebtedness" (Fernando Reimers); (7) "The State Socialist Model of Higher Education: An Assessment" (Pal Tamas); (8) "Higher Education in Western Europe" (Wolfgang Mitter); (9) "Economics of Higher Education" (Mark Blaug); (10) "Global Learning" (Edward W. Ploman); (11) "Distance Education" (Jean-Marc Pottiez); and (12) "Using the Media" (Naomi E. Sargant). A discussion by Edward W. Ploman on provides concluding observations about the Paris meeting. (Some papers contain references.) (MSE)

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THE ROLE OF THE UNIVERSITY: A GLOBAL PERSPECTIVE

edited by Torsten Husen

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THE ROLE OF THE UNIVERSITY:
A GLOBAL PERSPECTIVE

edited by Torsten Husén

A Joint UNU/UNESCO Project on "The Evolution of the Role of Universities"

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Introduction

The present volume originated from a joint UNU/UNESCO project on "*The Changing Role of the Universities*", coordinated by the late Edward W. Ploman, formerly Vice-Rector, Global Learning Division, United Nations University. A panel meeting was held in Paris in May 1990 attended by a number of experts from various regions of the world. Several of them had prepared papers which, after some editing, have been included in the present volume. Various circumstances have contributed to a delay of the report on the project. In the first place, Mr. Ploman's illness and subsequent demise caused the UNU to turn to another editor. I promised to serve in this capacity and accepted the invitation, not least because of the interest I had in the problems raised by the project. Secondly, it soon became evident that we needed some complementary contributions, for instance, on the systems of higher education in the Eastern European countries which, due to the political change after 1990, were in process of re-orientation. We also were waiting for a contribution on Africa and hoped for one on Japan. By the end of 1992 it became evident that we had to set a deadline for the contributions, but at that point the new editor, for personal reasons, had to delay his work.

What we are now presenting is a report with most of the contributions presented at the Paris meeting, plus a couple of additional papers, such as the one on African universities.

The present role and, most certainly, the future one, of the university varies from region to region. I am, as Editor of this volume, keenly aware of this, not the least because, during my work with the material included, it has become evident to me that my own contribution on "*The Idea of the University*" mainly reflects the historical development of the Western universities. Even considering the strong influence that these university models have had in Asia, Africa, and Latin America, it should be kept in mind that these regions have in several instances historically developed indigenous models.

What should be the proper role of the university? This is a central question posed by policy makers and planners in education all over the world today. The quest for an answer has become particularly urgent in an era when education (and research) has been conceived as a major factor in social and economic development.

It would seem useful to sketch a kind of typology of roles.

1) The university as an institution, as it once emerged in Europe during the Medieval Ages, to train civil servants, professionals (in law and medicine) as well as recruits for the priesthood.

2) The university as a depository and/or ivory tower for knowledge and wisdom as was once the famous library/university in Alexandria in Egypt.

3) The university as a generator of new knowledge, an institution for scholarly research, as was the case with the university conceived by Wilhelm von

Humboldt at the beginning of the 19th century.

4) The university should play the role of "public utility" as envisaged for the so-called land grant colleges established in the United States by the Morrill Act of 1862. Another example is the concept spelled out in the early 1970s in a study on the role of the university in the Third World by Kenneth Thompson for the International Council for Educational Development .

5) The university should serve as a fortress for freedom of speech and criticism of the established government; thereby serving political democracy. The overthrow of repressive totalitarian regimes often originated from the universities.

Which of these roles should the university play? The overriding answer is, of course, that it should play all of them. However, the mixture varies depending on time and country. As has already been hinted at above, the context provides the conditions for a proper mixture. The research role, particularly the one of cultivating basic research, is more important in affluent countries, whereas the utility aspect is more crucial in developing countries. However, in our pragmatic time with a society built on information and awareness of investing in the so-called human capital with increased material standard of living, and beset with ecological problems, the utility aspect tends to be more emphasized. On the other hand beings do not live on bread alone and the role of higher education in personal development and cultivation - what in the German vocabulary is referred to as *Bildung* - must also be seriously considered.

The present book reflects the various conceptions sketched above. The university in the different regions of the world has to undertake tasks that vary with the cultural and economic conditions. The contributions will hopefully give a true, multi-faceted picture of the present trends and the future development in the institutions of higher learning in today's world.

In spite of cross-national and cross-cultural differences in the role of the university, there are certain issues which are more or less common to all nations and regions. There is the tension on the one hand, between the university as a promoter of higher culture and of cultivating the mind for its own sake and, on the other, its pragmatic role of serving society as an agent of development and economic growth. Another issue has to do with the amount of academic freedom that should be accorded to the university and, on the whole its relationship to political bodies and various private interest groups. A third issue is the proper balance on the one side, between the transfer or diffusion of knowledge and, on the other, the generation of it by research. The way these issues are resolved varies, not the least on the financial resources available. In countries where these are scarce, the main emphasis has to be placed on the transfer of knowledge and the training of young people who could be available for the government and the general development of the country and its economy. In countries with plenty of resources, at least top academic institutions can put heavy emphasis on research, simply because being at the frontline of science an advanced technology means securing advantages in economic development and international trade.

Since the role of the university has seldom been discussed in the framework of comparing technologically and economically highly advanced countries with those in the process of development in these respects, it is our hope that the issues will be better highlighted under the comparative perspective in this book.

Acknowledgment

I would like to thank the officers of the United Nations University, particularly Dr. Roland J. Fuchs, Vice-Rector, who patiently have been waiting for me to finish the editorial work. They have been very helpful. I had valuable discussions with Professor D. Chitoran of UNESCO in arriving at the conclusion as how to structure this volume.

THE ROLE OF THE UNIVERSITY

The Idea of the University
Changing roles, current crisis and future challenges
Torsten Husén

Before the 1950s, higher education was hardly a field of scholarly studies, which is paradoxical given the fact that institutions of higher learning were the places where most of the research activities were taking place. There was 'institutional research' at some American universities, in most cases focused on pedagogical and/or instructional problems, but not on studying universities as institutions and the social settings within which they were operating. However, since the late 1960s, higher education has become a rapidly growing field of research, to a large extent, comparative in orientation. A survey and bibliography by Altbach and Kelly (1985) contains 6,901 entries, most of them from the 1970s and early 1980s. Several research centres have specialized in comparative studies in higher education. A communication network for the exchange of experiences and research has been established by organisations such as the International Council for Educational Development (ICED).

The Carnegie Commission on Higher Education, followed by the Carnegie Council on Policy Studies in Higher Education, dealt primarily with problems of higher education in the United States, but commissioned several comparative studies, such as the one by Ben-David (1977). The Commission dealt with problems of undergraduate education in a long series of reports.

Given this proliferation of material, it would be utterly presumptuous to try to present within the framework of an article like this a more detailed picture of the state of the art in this field. The goal set for the present article has been to present some of the major issues and trends. In order to put the present situation in perspective it has been necessary to begin with a short historical background. In preparing this work I have drawn from my paper on global education written in 1985/86 for the United Nations University.

As pointed out in the Editor's introduction the present chapter deals almost entirely with the history of Western university as it developed from its origin in the 12th century.

The concept of the university - a brief historical review

The university as an institution has to be conceived in its historical, cultural and economic setting. From the present vantage point, in our high-technology, information-based society, it differs enormously from the university established in medieval Europe. It does not have, as an organisation and with regard to its functions, much in common even with the German, French or British universities of the mid-nineteenth century. But there are, as we shall see, certain features which are concerned with academic ethos and freedom and which have survived changing conditions.

In order to obtain a proper perspective of the current situation and the issues that universities in both developed and developing countries must face, it is useful to indicate briefly the main stages in their development process, covering some 800 long years.

The medieval university - a community of masters and students - was a typical example of the guild system. Students wanting access to advanced learning flocked as apprentices to men known for their scholarship. The term 'chair', designating a teaching chair, has been used for centuries to mean a full professorship. Wisdom was, in the beginning, literally lectured *ex cathedra*.

The next stage in the development of the university was inextricably connected with its role in shaping the national state, which needed professionally trained civil servants. Students from countries like Sweden and Norway on the periphery of Europe were sent to continental universities, just as developing countries today send their students to Europe or the United States. Latin established itself as the *lingua franca*. In the 1630s, Comenius (Jan Amos Komensky) produced a widely used textbook entitled *fanua linguarum reserata (The Door to the Languages Opened.)* An international academic culture with Latin as the medium of communication dominated scholarly Europe.

The idea of cross-national cooperation in culture, science and, not least, education, was indeed a hallmark of the seventeenth century. Francis Bacon, for example, spelt out a plan for such cooperation. In his book *Seminarium universum*, published in 1701, German educator August Wilhelm Francke advanced the idea of internationalizing teachers' education.

The activities of the very respected educationist Comenius should be viewed in such a context. Comenius was convinced that a prerequisite for international cooperation, as well as for educational reform, was a fundamental change in language instruction, that is, in teaching Latin. His concept of '*pansophia*' was closely related to this.

Well into the nineteenth century, universities were solely teaching and training institutions. Research played only an accidental role. But the founding by Wilhelm von Humboldt of a research university in Berlin in the early nineteenth century set an example that was emulated all over the world. Research in most European countries had until the end of the eighteenth century been conducted under the auspices of the academies, such as the Royal Society in Great Britain. The German research university model was emulated in the United States, particularly by the private universities such as Johns Hopkins (which provided only graduate teaching and research), Harvard, Stanford and the University of Chicago.

Before the turn of the present century, a good many American students went to Germany for graduate studies that were not available in the United States. College was the American counterpart of the European upper secondary school. The American secondary school, the high school - had developed as an extension of the elementary school, which was further emphasized by the fact that it was run by the local community, whereas the European grammar school - *lycée* or *Gymnasium* - usually was governed by the state. High school, much earlier than the European junior secondary school, became a mass institution.

Until the mid-twentieth century, the university in Europe was an élite institution, typically enrolling 2 to 4 per cent of the relevant age-group. A qualified technical work-force, required by emerging industry and commerce, was trained by tertiary institutions outside the university system, for example by institutes of technology for the training of engineers. Such a binary system was more prevalent in Great Britain than in Germany, where institutes of technology could more easily gain university status. In the United States the Morrill Act of 1862, and the founding of the so-called land grant colleges, opened the doors of universities to 'practical' studies relevant to agriculture and industry.

The transition after the Second World War from an industrial to a service and welfare society, which gave rise to a rapidly growing public sector, has led to a corresponding demand for highly trained manpower in different occupations - social workers, office workers and teachers. During the period from 1950 to 1975 university enrolment 'exploded' in several European countries, the United States and in some developing countries. The university changed from an élite to a mass institution. In his taxonomy of university development Trow (1973) distinguished between three stages: élite, mass and universal. He made the dividing line between the élite and the mass system at 15 per cent enrolment of the relevant age-group.

The enrolment increase was accompanied by the diversification and specialization of training programmes and research activities and the appearance of the 'multiversity' - a term coined by Kerr (1963) in a book on the development of the large state universities in the United States. 'Practice' entered a scene that had previously been dominated by 'theory', which had enjoyed much higher prestige (*Oxford Review of Education*, 1985). Discussion began on what should be the real objectives of the university in a society where, for example, 20-25 per cent of an age-group went on to tertiary studies. The matter was seriously considered by the Robbins Commission in the United Kingdom in the 1960s and by the U68 Commission in Sweden (Husén, 1977).

During the last few decades a new role for the university has been considered - to provide 'recurrent' education (Tuijnman, 1989) within a strategy of 'triple alliance' between the world of employment, the government (both local and central) and the education service (Ball, 1985). The National Advisory Body and the University Grants Committee in the United Kingdom a few years ago issued a joint statement about objectives. After taking notice of the fact that specific knowledge quickly becomes outdated, and that the context in which it is applied changes rapidly, it is underlined that 'initial higher education, particularly at diploma and first degree level, should...emphasize underlying intellectual, scientific and technological principles rather than provide too narrow specialist knowledge'. The abilities required in modern industry and business include (Ball, 1985, p. 232):

> "the ability to analyse complex issues, to identify the core problem and the means of solving it, to synthesize and integrate disparate elements, to clarify values, to make effective use of numerical and other information, to work cooperatively and constructively with others, and above all perhaps, to communicate clearly

both orally and in writing."

At some American universities, centres for continuing education had already been founded in the 1950s, where professionals were given the opportunity, for a few days or a couple of weeks, to upgrade their competencies with the assistance of faculty members.

By and large, the universities in advanced industrial countries have increased the proportion of part-time students who take carefully chosen courses in order to qualify for more demanding tasks in their vocational life and be promoted.

This sketchy review has followed the development of the university in Europe. Third World countries, some of them referred to as 'developing', have followed different northern models, which in some instances have been imbued with indigenous traditions, for example in Japan. After the Second World War, when a great many countries changed their status from colonies to autonomous nations, an enormous need for graduates to run the administration and the professions in the independent countries emerged. Young, promising people who came out of the indigenous secondary schools were sent to Europe or the United States in the first place, for basic tertiary education. They were thereby educated in the prevailing intellectual and cultural traditions of the host countries.

The universities founded in Africa, Asia and Latin America were often established according to European models. Graduates from these continents were sent to Europe and the United States for advanced degrees in order to provide indigenous faculty to replace expatriates. Those who studied abroad and were assigned teaching positions after the completion of their studies quite naturally emulated the practices established at the institutions where they conducted their studies.

Curricula at universities in the Third World countries have usually been patterned on European models. The 'eurocentric' system of university education has hampered universities in these countries in releasing endogenous creativity and seeking their own cultural roots. There is, however, a tension between the orientation toward indigenous values and problems, on the one hand, and addressing global problems, on the other, a tension that can only be alleviated or resolved by communication across cultural boundaries.

Irrespective of whether a university is in a high-technology, information-based society or in a developing society still dominated by a subsistence economy, we can identify certain pervasive, and even universal features of higher education, which make higher education, in fact, 'higher'. Can we identify a common core that constitutes 'the idea of the university'? The main part of the present article is devoted to this exercise.

The university as a social system

The university as an institution has always been rigid and conservative, but its ethos of inquiry and pursuit of truth has been radical in the literal sense of the word - that is, going to the roots. This appears as a paradox. How can an institution be conservative *per se* but radical in its mission to the extent of coming into conflict with power centres such as the state or the Church? The explanation lies in the scope of freedom that in spite of everything has been given to the university. Intellectuals, whether they be single authors of linked to some other institution, cannot enjoy institutional protection that the university can give its inmates. Typically, in important matters the European university for a long time operated under its own jurisdiction.

Attempts from the outside to introduce deep-seated institutional changes have been met with fierce resistance, which has been seen as a conservatism rooted in self-interest. But in this case, self-interest happens to coincide with interests to protect the freedom to search for knowledge.

The university was once established as a community of scholars and students, as a loose, but intimate, association with no hierarchical or bureaucratic superstructure. From the outset, the communicative link between the professor and the students who flocked around his 'chair' was an outstanding feature of the institution. The university could operate within a relatively wide ideological and financial margin set by the state and/or the Church.

Professors at leading universities have today been characterized as *prima donnas*, and the model of traditional university governance as 'professional feudalism' or, more recently as 'organized chaos' or 'garbage'. Universities differ fundamentally from other organizations in society. They are not, as are large commercial enterprises, guided by instrumental and economic rationality towards common, well-defined goals. Maximization of expected values is fundamental to rational action. But an academic organization, such as a university, has no common goals. The goal structure, to say the least, is extremely diffuse.

But the single units, the institutes, departments and 'chairs' represented by individual *prima donna* scholars, which together constitute a university, possess an ample amount of what the university as a collectivity lacks, namely clear goals. Thus, the university can be conceived as a 'container' for a number of rather independent units (institutes, departments, and, not least, individuals). Each unit pursues goals of its own. The structure is atomistic. Decisions taken at the university level have to be settled by the governing board. The rationality has its focus at the basic operational level where individual academics strive for recognition by finding out better solutions to problems than their colleagues.

Goals of university education

Against the background given above, what could be conceived as the proper goals of university education? The purpose is not to espouse any particular educational philosophy but rather to try to synthesize certain aspects of the debate that has been going on over the last century and to pinpoint programmes aiming to achieve learning of a more integrative and liberal arts nature. We are primarily interested in university programmes that try to equip students with what is referred to as liberal or general education. What traditional subjects should be included in a core curriculum? Should these traditional subjects be rearranged so as to achieve the cross-disciplinary mix that would prepare students to tackle practical problems with which they will be confronted in real life? Is disciplinary structured knowledge more useful in the long run than an *ad hoc* organisation that helps tackle actual problems but not unforeseen ones? Thus, the very exposure to problems and information relevant to their solution is a pedagogical issue of the highest importance.

The pedagogical approach conducive to liberal arts education has to be considered. That the 'cognitive map', in terms of specific pieces of information, tends to change rapidly so as to make today's 'approved' knowledge obsolete by tomorrow is an important fact. This has led to greater emphasis on general cognitive skills, such as problem-solving, rather than on mastery of specific facts. It has also led to greater emphasis on skills to find and sift new knowledge in an era of information explosion to promote the ability to keep up with the changes taking place on the cognitive map.

In order to obtain a perspective on the Western university of today, we could start with the Humboldtian university in Berlin, established with emphasis on research and graduate training which first spread to other parts of Germany and then was emulated in other countries. When John Henry Newman held his famous lecture in 1852 on 'The Idea of a University', making a plea for 'knowledge being its own end' and refuting the Baconian concept of utilitarianism, the idea of research and teaching being conducted in close connection began to materialize at German universities, with institutes and seminars being established around university chairs.

The idea of a university, with research and training of researchers as a main mission, materialized in the United States at Johns Hopkins, which was founded in 1876 and began as a pure graduate school with emphasis entirely on research and training of researchers. Shortly before that, the Land Grant Act (the Morrill Act) had been passed in Congress, which was a breakthrough for a new utilitarian concept of the university, followed some decades later by the extension services that revolutionized agriculture in the United States. In the 1930s, the young President of the University of Chicago, Robert M. Hutchins, launched a 'counter-reformation' which he said should 'take the university back to Cardinal Newman, to Thomas Aquinas, and to Plato and Aristotle'. He succeeded, according to Kerr (1963, p. 17), in reviving the philosophical dialogue, but 'Chicago went on being a modern American university'.

The undergraduate programme introduced by Hutchins was one designed by 'secular absolutists'. Students should be acquainted with absolute and timeless truths. Worthwhile knowledge was to a large extent embodied in a set of Great Books, which could be listed and identified as what every educator person should know. Thanks to the devoted work by the faculty and a good selection of students, the Chicago undergraduate programme was successful for quite some time in training young people to become 'generalists', to give them a well-rounded liberal education.

Schematically we can distinguish four models on the European and North American scenes, models that have been more or less emulated in the rest of the world (Ben-David, 1977):

The Humboldtian *research university*, where research and teaching were expected to interact from the very beginning of university studies. Studies were to gain experience from frontiers of knowledge and how these frontiers were extended in order to be prepared as pioneers in their respective professional fields.

The British *residential model* - the 'Oxbridge' model - is built on close informal contacts between students and professors. Such contacts are considered as important for the development of young people as is the attendance of formal lectures and seminars, and have at Oxbridge been formalized as tutorials.

The French *grandes écoles model*, epitomized a state-directed meritocratic society, where professionals with a particular education are regarded as an exquisite élite. These institutions (where no research is conducted) are intellectually and socially highly selective.

The *Chicago model*, developed by Hutchins, was a programme with a strong liberal arts orientation. The ideal was to make students familiar with the thinking of leading personalities in the humanities, sciences and social sciences, and to promote their ability to pursue further studies on their own and train them to be independent and critical in their study and thinking.

Traditions of the Western university

For centuries, the university, as it emerged in medieval Europe, changed little and slowly. It embodied, as mentioned above, the paradox of being conservative as an institution, but with regard to its intellectual orientation it has tended to be a hotbed of new ideas and innovations, and very often of political radicalism. It was originally created to educate an élite for the Church and the state. It has always tried to establish both a certain distance and autonomy between the two. Briefly, the Western university has been characterized by the following:

- It has made a more or less sharp distinction between theory and practice.

- It has put a premium on autonomy and aloofness to the extent of complete irrelevance.

- It has been both socially and intellectually an élitist institution.

- It has tried to be an 'ivory tower', as an institution whose main purpose is to 'seek the truth'.

These four characteristics have also loomed large in universities in other regions of the world, where the European model or models have been emulated.

In 1984, on the occasion of the fiftieth anniversary of the New School for Social Research in New York City, a special issue of its journal *Social Research* reprinted an article by the outstanding political scientist Hans Morgenthau entitled 'Thought and Action'. The article is typical of how a European academic, a German professor no less, sees the university. Morgenthau begins his article with the following dictum (Morgenthau, 1984, p. 143):

> "Theoretical thinking and action as typical modes of human behaviour are irremediably separated by way of their logical structure. Since politics are in their essence actions, there exists with the same necessity an unbridgeable chasm, an eternal tension between politics and a theoretical science of politics."

Theory tries to understand the empirical world by observing it but without changing it. Practice tries to interfere in the empirical world with the prime purpose of changing it. The *vita contemplativa* (theoretical analysis) is the very negation of *vita activa* (political action). Morgenthau refers to the *Nichomachean Ethics*, where Aristotle makes a distinction between *theoria* which is the highest form of human activity and is incompatible with *praxis*, which belongs to the realm of politics.

The same views have in a more elaborate way been spelt out by Lobkowicz (1983), Rector of the University of Munich, in an anthology of papers entitled *The Western University on Trial*. At the core of 'the idea of the university', Lobkowicz sees the pursuit of truth. The crisis of the Western university is due to its failure to ask itself the basic question 'What is the university good for?'. The very expression 'the idea of the university' goes back to Cardinal Newman and his 1852 lectures as founding rector of Dublin University.

The *raison d'etre* of universities is usually defended by pragmatic arguments, for example, the competitive power of a nation on the world market. But most of the disciplines taught at the university have little, if any, direct bearing on the economic efficiency of a country and its standing in international trade and military competition. Its faculty and researchers feel an overriding obligation to contribute to the extension of the frontiers of knowledge which they see as its fundamental and distinctive mission.

A university is a comprehensive institution with a wide range of disciplines and specialties. The very multiplicity of subjects enables the university to combine professional training with cultural enlightenment. The fact that humanities, social sciences and natural sciences are studied in the same institution gives it the resources to educate well-rounded professionals and not just narrow technocrats. It is particularly important to bridge the gap between humanists and scientists, the 'two cultures' that C.P. Snow spoke about.

According to Lobkowicz, (1983, p. 34): 'The university, as originally conceived, is the only human association in which men can come together solely for the purpose of knowing ... [it] represents institutionalized theory.' The search for truth is what ultimately justifies the existence of the university. In this view the university serves society best by being itself 'a place for tranquil, disciplined and objective thinking', which is the best way of preparing for any profession.

Most advocates of the ivory-tower model of a university pay at least lip service to the idea that the university should serve society by pursuing things relevant to that society. But these functions, they say, can also and more effectively be fulfilled by other pragmatically-oriented institutions. Universities are easily distracted from their tasks, which require a high level of originality and detachment from practical concerns.

The traditional European philosophy about the proper role of the university has had its strongholds at the great research institutions and on the whole at élite universities. But not even at those institutions, depending upon how they perceive their mission, has this philosophy remained unchallenged. One example is the Massachusetts Institute of Technology, which for a long time has played an important role in contributing to policy-making in both technology and economics in the United States. The stance taken by Morgenthau, for example, has increasingly been repudiated by academics determined to break away from the idealistic philosophy of a line of demarcation between *theoria* and *praxis*.

A similar development can be seen in Third World countries where the role of universities in promoting social and economic development has become a major task (see, for example, Thompson et al., 1977). In this study, the focus was on 'promising experiments' going on in LDCs with the purpose of having higher education play a pivotal role in social change.

Crisis and reappraisal of higher education

Western universities went through a period of soul-searching self-examination after the period of trials and tribulations that reached a peak with the 'events' of 1968. Those who defended the traditional idea of the university felt that it was under fire from those who wanted to politicize, moralize and reform an institution whose 'primary allegiance is to cognitive rationality'. (Chapman, 1983, p. 1)

The re-examination was also partly epistemological. Much of the quest for a hermeneutic (understanding) approach was a revulsion against analytic and utilitarian causal rationalism and a call for spiritual unity and moral significance. Here, there was, of course, an inherent ambiguity between the two approaches, which required a delicate balance between them. It was felt that the Western universities primarily committed to intellectual objectivity and using the criterion of competitive excellence in their internal promotion did not quite adequately meet the needs of Third World countries.

Agencies concerned with human and social development took a much more pragmatic view of the role of the university in Third World countries. UNESCO noted that science, being a product of history and society, 'owes as much to the social environment as to the work of scientists'. Science interacting with the surrounding society implies that the developing societies should try to work out their own scientific and technological development strategy. Although the application of science on a long-term basis calls for analyses of global problems, it has to recognize the importance of local cultures and the needs of the people who share that culture. In its Medium-Term Plan for 1977-82 the Organization points out that the new concept of development puts man in the centre of development. A major objective should be the 'promotion of the formulation of a global, multidisciplinary interpretation of development, having regard to the interrelations between the various factors contributing to this, and which are, in return, affected by it'. In a presentation to an African audience the Director-General of UNESCO pointed out that in the developing countries the university has a key role where students and teachers from a wide variety of background can work together, 'combining training and research, study and production, tradition and progress, attachment to one's identity and responsiveness to the world, in the work of pursuing the objectives of the community' (Sanyal, 1982, p.8). In 1986, within the framework of the UNESCO Medium-Term Plan, the Division of Higher Education adopted certain principles of action, among them giving priority to higher education for endogenous national development, avoiding élitism and giving national policies precedence over individual options, and promoting institution cooperation, as a means of bridging the gap between countries at different states of development.

The ivory-tower philosophy has, as we have seen, been challenged over the last couple of decades. The 'ecology' of higher education has changed rapidly since the early 1950s. University enrolment has multiplied manifold. It thereby changed from an élite to a mass institution (Trow, 1973). Research began to be supported by governments on a massive scale. People began to talk about 'mega-science'. The increased financial support from public sources gave rise to demands for accountability and influence on the part of public interest groups on university governance. Whether the academics wanted it or not they became closely involved with government and industry, not least by undertaking large-scale commissioned projects. The body of research grew and was greatly enriched as new areas of study were introduced. *Verwissenschaftligung*('scientification') created hopes that research would add a new dimension of rationality to decision-making in public affairs. Hopes were high for what science could achieve in improving the human condition (see, for example, Lundberg, 1947). The tendency to 'vocationalize' university education at a time when demand for highly trained manpower was greater than the supply was met with opposition on the part of students who wanted 'genuine education', and also reacted against the neglect they felt they were being subjected to in an era of rapidly increasing resources for research, when professors cared more about their research projects than about teaching.

The uproar at the University of Paris in 1968 illustrates what can happen when student disenchantment reaches an explosive level. The then Minister of Education Edgar Faure, architect of the *loi d'orientation* (guideline legislation) of 1968, outlined in a book his diagnosis of the French situation and the objectives of the new law (Faure, 1969). The book includes a presentation given by him at the General Conference of UNESCO in 1968. He regarded the student upheaval as a crisis of communication, at the root of which, politically, was the double problem of autonomy and participation. He quotes a UNESCO report on how young people who learn, through modern news media, about different cultures tend to form a separate international youth culture as opposed to adult cultures, locked in traditional schemes. The protesters were concerned about the war in Viet Nam and violently opposed to the consumer society which was seen as depriving individuals of their self-determination. Faure also pointed out the imbalance, in terms of enrolment, between faculties and disciplines. In France, six students out of ten are enrolled in the humanities and social sciences, and only one out of four in the natural sciences. The planning document prepared by the *Commissariat du Plan* pointed out that at least twice as many science graduates were needed.

The new university, guided by the principles of autonomy and participation, needed a new pedagogy based on a dialogue and not just a transfer of knowledge which, once it has accumulated a certain stock, was assessed by 'punctual examinations'. Furthermore, universities should realize that teamwork was called for, because in the real world this was a basic mode of work, not least in the field of management. The new category of students who, to a large extent, come from homes without a tradition of advanced education, would gain most from such changes in teaching strategies. More emphasis had to be put on learning how to learn in university courses, as well as teaching how to teach.

Foreign study, cultural authenticity and internationalization

The number of students attending universities outside their home countries has increased more than tenfold worldwide over the last thirty years. The motive for studying abroad is, in the first place, to obtain good professional training that either cannot be had in the home country or, if available, is considered inferior to that of the foreign country. Graduate studies at leading institutions in other countries is, at the very least, a means of transferring competence and knowledge essential for economic and social development in the home country. Study abroad has been an appropriate educational remedy for the human capital needs of developing countries.

Even though foreign study has gone through a period of spectacular expansion over the last few decades, it has a long history. Leading universities established themselves on the European continent much earlier than in countries in the periphery, where they were unable to reach the level of quality of the continental ones. Students from peripheral countries flocked to the universities of Germany and France. Latin served as the *lingua franca* and had the same instrumental value for international communication in the academic world as English and French have today.

In addition to the pragmatic goal of obtaining useful professional training, a period of study abroad contributes to a broader cross-cultural perspective for the student. A deepened knowledge of the human condition in other cultures contributes to promoting international discourse and understanding.

Until the early 1970s, international and other agencies dealing with development believed that higher education was the key to economic take-off in countries newly liberated from colonial rule. A few highly trained individuals would have a multiplier effect and were expected to bring about a take-off in the education system as well. Foreign study would be the fastest route for replacing expatriate manpower and making provisions for rapid economic development.

In the 1970s there was a shift in priorities, noticeable for example in the World Bank's educational policy for the Third World, which changed from giving priority to post-secondary education to meeting the basic educational needs of the poor. At the same time, doubts were being raised about the value of advanced higher education provided at leading universities in the North. The categories of thinking imparted at foreign universities were those of 'normal science' in these countries. The relevance of the subject matter presented and the frame of reference for it was called into question. Students from the developing world coming to 'central' countries for graduate studies were incorporated into the scientific-technological, market-dominated infrastructure of these countries. Underlying all this were the epistemological and philosophical foundations of the Western countries with a research orientation and attitudes towards teaching and curricula which reflected highly developed and affluent economies. The emulation of the professional models of countries at the 'centre' did not always contribute to liberating indigenous creativity and self-reliance.

Given this background, the very idea of studying in central countries has been challenged. Weiler (1984, p. 177), for example, sees the dependence on academic training provided by central countries as 'the more significant obstacle to cultural authenticity'. We are faced here with a serious dilemma that looms large. How can bright students from developing countries be given an opportunity to develop their potential without being sent to the best central universities?

How can cultural authenticity and the cultivation of local and/or national traditions and paradigms of inquiry be preserved in higher education in a world of increasing interdependence? The modes of inquiry and the entire intellectual orientation of universities have been, since the 17th century, traditionally been universal in character. Scholars have been searching for universal truths and universally valid principles. Latin was, as pointed out above, in spite of linguistic, cultural and other differences, the language of scholarly communication. Students from the backward and underdeveloped countries in the North went to Paris, Prague and Leyden for their studies, which were conducted in Latin. One could easily find parallels in earlier centuries to countries at the 'centre' and 'periphery' respectively.

The idea of the university as it is still espoused in Europe and North America has dominated Western science. In his Introduction to *The Western University on Trial*, Professor J. W. Chapman, a political scientist, points out in considering the predicament of Western universities by 1980: 'No other civilization - not the Chinese, Indian or Islamic - invented an institution specialized for intellectual education; this is unique to the West' (Chapman, 1983, p.1). But he is keenly aware of the tension between individualistic rationality and the desire for spirited unity and moral significance. This internal ambiguity calls for a delicate balance between truth-seeking and relevance.

Comenius was convinced that the main prerequisite for educational reforms of international proportion was a common language of instruction in higher education. To this effect, in 1631 he published his *Fanua linguarum reserata*. It was a phenomenal success and was translated into twelve European languages as well as Arabic, persian and Mongolian. Alfred North Whitehead once referred to the seventeenth century as the 'century of genius' with outstanding scientists such as Bacon, Galileo, Kepler and Locke. He could just as well have referred to it as the century of genius in the realm of international relations, where scientists and philosophers were able to communicate with each other through *bona officia* of the new academies, such as the British Royal Society and the Académie Royale des Sciences in France. Intellectual communications were established between scholars in Europe and the Far East. Along with internationalism went growing pluralism and religious tolerance in countries like the Netherlands, spurred by the expulsion of religious dissenters from other countries.

Internationalism in the seventeenth century was marked by more than a dozen proposals for a universal language. There was almost the same number of cultural utopias and schemes for educational cooperation, such as Bengt Skytte's 'Sophopolis' (Brickman, 1983/84). Inspired by Comenius he spelt out the idea of establishing centres or cities of learned and wise men drawn from many countries. Such centres were conceived as islands in a world of intolerance, censorship and persecution. At least two universities, Padua and Leyden, had multinational faculties and student bodies. The idea of cross-national cooperation in culture, science and, not least, education was indeed a hallmark of the seventeenth century. Francis Bacon developed a plan for such cooperation.

Revising the undergraduate curriculum

Before the Age of Enlightenment both the school and the university curriculum were based on faith - reverence for the past and firm trust in authority. Before the impact of the Enlightenment, a change was already elicited by the Cartesian mode of thought. It proceeded with Sir Isaac Newton and was completed by Encyclopedists, a development that led to nineteenth-century positivism. Even though there was a decline in the dominance of the Scriptures, the classical heritage with Latin and Greek playing key roles, prevailed for a long time. Classical studies were considered to be the core of *culture générale*.

A curriculum is often perceived in terms of subjects that should be studied for so many years and for so many periods a week, as well as in terms of the sequence of topics within each subject. The choice of subject areas and the relative importance, as reflected in how much teaching should be devoted to them, is usually controversial because it is concerned with the relative importance and power of the various academic organisations. Thus, territorial conflicts easily flare up. The problem of composing a well-rounded curriculum becomes particularly difficult and vexing because the academic reward system promotes narrow specialisation and, therefore, works against the cross-disciplinary approaches necessary for a concerted effort in tackling real-life problems. There are always difficulties in trying to achieve a consensus on what subjects should constitute the core curriculum in studies organized to achieve the aims of a 'liberal' or 'general' education.

If an institution of higher learning wishes to turn out graduates with a well-rounded education with the dual aim of preparing them both as professionals and as educated persons, a difficult selection has to be made from the considerable choice of courses offered. Each of the various departments are offering many courses from which the selection has to be made. The great variety of such courses, each with a rather diluted body of information, easily leads to what could be called multidisciplinary illiteracy. Superficial knowledge replaces study in depth, and the great many short courses easily prevent the development of analytical skills and of critical, independent study which ought to be the by-products of in-depth study.

On two occasions, in 1943 and 1978, Harvard University appointed committees, with the mission of inquiring into the problem of devising a curriculum of well-rounded general education for undergraduate students. The Red Book, as the 1946 Harvard report is known entitled *General Education in a Free Society*, went to some length to put the issues of undergraduate curricula into the framework of modern, democratic society. Given its premises, democracy evidently carries the germ of 'discord and even fundamental divergence of standards'. On the other hand, democracy cannot function unless there are some 'binding ties of common standards'. This dilemma has to be resolved by the educational institution, which must help establish a common frame of reference for standards and beliefs without which democracy cannot survive.

Thus, an undergraduate curriculum would have to achieve two overriding objectives - heritage and change, and communality in outlook and diversity. In their discussion of the principles upon which a core curriculum 'for survival' should be based, Boyer and Kaplan (1978) point out that every core curriculum in the past has been guided by a vision of communality. To be sure, all the students should be equipped with some basic, discipline-structured competence. But they should also learn to be self-conscious in relation to tradition. This goes beyond 'knowing'; it means knowing *how* and *why* we know. The core curriculum they propose is 'built on the proposition that students should be encouraged to investigate how we are one as well as many (*e pluribus unum*)'. (Boyer and Kaplan, 1978, p. 58)

Boyer and Kaplan consider the following three domains as the communality, the 'core' of a common undergraduate 'survival' curriculum. **First**, history that makes students aware and knowledgeable about the common heritage, a history taught without bias and with a minimum of national ideology. **Second**, exposure to the broad range of issues raised by our common existence. This means 'comprehensive literacy' in terms of mother-tongue and various 'languages', including computer language and mathematics. It also means studies of institutions in present society and their impact on us as individuals and on our roles as producers and consumers. **Finally**, preparation for the future on the basis of knowledge about the present situation. Depletion of natural resources, proliferation of nuclear weapons, overcrowding and mass starvation, and unbalanced economic distribution are some of the main problems faced by a world of increasing interdependence.

In 1978 the second Harvard Committee produced a *Report on Core Curriculum*. Out of 100 courses, the committee proposed a selection of eight, with the intent of equipping undergraduate studies with a common core of learning but not with a body of common teaching. The committee proposed that every undergraduate student should take at least one course in each of the following areas: literature and the arts, history, social and philosophical analysis, and foreign languages and cultures. Emphasis in the teaching and learning in these fields should be on the 'mode of understanding' in the respective fields. In the discussion on the core curriculum, many participants pointed out the importance of putting emphasis on the modes of inquiry in the major fields of intellectual disccurse instead of trying to present comprehensive courses with a large amount of more or less unstructured and unanalysed information.

Dilemmas in preparing an undergraduate curriculum

In preparing its curricula, the university is faced with a dual task: on the one hand, it is expected to prepare its students to generate new knowledge. On the other, it is in charge of imparting already existing knowledge to a new generation of professionals. These two tasks easily come into conflict with each other, since most students do not intend to go in for research and are not interested in it. Those aiming for a research career are more interested in transforming existing knowledge than accepting what already exists.

Another dilemma has to do with specialization as against general or comprehensive overviews. Evidently, in-depth study in a given field generates solid competence in that particular field but easily leads to a narrow perspective and weakens the ability to acquire new knowledge when the subject matter learned becomes obsolete. One solution to this dilemma has been to recommend a core curriculum that provides a common frame of reference for all students. It gives them an opportunity to test their interests and abilities and can thereby serve as a launching pad for subsequent specialization. The danger of too much specialization at the undergraduate level has been given much attention. But considering the exponential growth of research, coupled with enormous specialization, there is ample reason to be concerned about too much specialization at the graduate (doctoral) level as well.

A well-rounded, general education is concerned not only with cognitive objectives but also with emotional and moral development. It is also concerned with the cultivation of values. When, in 1943, James B. Conant, the President of Harvard University, appointed a committee on 'General Education in a Free Society' with the task of looking into the proper curriculum for the 'great majority' of young people and not only the 'comparatively small minority that attends the universities or colleges', he said in the Introduction to the report (Harvard Committee, 1945, pp. viii *et seq.*):

> "The heart of the problem of a general education is the continuance of the liberal and humane tradition. Neither the mere acquisition of information nor the development of special skills and talents can give the broad basis for understanding which is essential if our civilization is to be preserved. No one wishes to disparage the importance of being 'well-informed'. But even a good grounding in mathematics and the physical and biological sciences, combined with an ability to read and write several foreign languages, does not provide sufficient educational background for citizens of a free nation. For such a programme lacks contact with both man's emotional experience as an individual and his practical experience as a gregarious animal. It includes little of what was once known as the 'wisdom of the ages', and might nowadays be described as 'our cultural pattern'. It includes no history, no art, no literature, no philosophy. Unless the educational process includes *at each level of maturity* some

> continuing contact with those fields, it must fall short of the ideal. The student in high school, in college, and in graduate school must be concerned, in part at least, with the words 'right' and 'wrong' in both the ethical and the mathematical sense. Unless he feels the import of those general ideas and aspirations that have been a deep moving force in the lives of men, he runs the risk of partial blindness."

These words were spoken in 1945, before the real enrolment explosion had begun in the United States, not to mention Europe. But the massification at the undergraduate level with the accompanying diversity among students with regard to background, intellectual ability, interest and expectations, has created a situation where major changes are called for. One of the strategies developed to cope with the new situation has been the establishment of the comprehensive university, the 'multiversity' Clark Kerr referred to in his Godkin lectures in 1963, or the *Gesamthochschule* that hardly took off in Germany after the unrest of the late 1960s. The establishment of the comprehensive university occurred for various motives. In the Swedish U68 reform, the bringing of all students to large comprehensive institutions of higher learning, a *högskola*, was considered to be beset with the same virtues as the setting up of comprehensive secondary schools. In addition to providing a common frame of reference one would also be able to inculcate egalitarian values.

Closely related to comprehensivization as a response to 'massification' were, in many countries, systematic attempts to vocationalize the programmes, particularly those in the faculties of arts and sciences. Every university programme should lead to a given vocational sector; this was, for example, the case in Sweden. In this context, attempts were made to disconnect teaching from its disciplinary orientation and incorporate cross-disciplinary approaches as learning strategies.

It is perhaps too early to pass a more definitive judgment on the policy of comprehensive institutions introduced in Europe in the 1970s. As pointed out by Cerych (1980), there has been an 'appreciable loss of momentum in certain ambitious reforms', and the late 1970s have been a period of 'reform dissolution'. He makes particular reference to the French 'orientation law' of 1968. He refers to the time-honoured belief that one cannot change overnight institutions that have existed for many centuries. (Husén, 1986)

Goal conflicts

The modern university is expected to work towards many different goals. It has to fulfill its traditional goal of training professionals. It is expected to promote equality of educational opportunity by giving access to university education to underprivileged groups. It is expected to contribute to the extension of the frontiers of knowledge through high-quality research; as well serve the national economy by carrying out research which will benefit national industry and trade. In some countries, it is envisioned to allow different interested parties to participate in its governance. Evidently, all these goals are far from compatible with each other. Some are in direct conflict, such as competence and quality with participation, or equality with quality. We shall elaborate here on the former goal conflict.

Research cannot be organized within the same managerial straightjacket that have been adopted for undergraduate programmes in rapid expansion, or in an emergency situation of enrolment explosion. There is a fundamental conflict between research, on the one hand, which needs plenty of elbow room for discretionary decisions to be taken by individual scholars or assemblies of qualified scientists and, on the other hand, the bureaucratic and hierarchical control of work and output. This conflict has become aggravated by other conflicts since the 1960s. Thus, we have witnessed the conflict between the application of intellectual criteria in academic appointments and the exercise of important power by being elected to serve on decision-making bodies representing particular interest groups. Academic competence has been forced to yield to the power of numbers. If such a conflict pertains to matters in which academic qualifications are indispensable, the solution may damage the standard of work at the university, be it research or teaching.

Centralized government of universities with detailed control exercised through an administrative hierarchy has grown stronger in recent decades in several countries. This has come into conflict not only with academic freedom but also with vociferous demands for student or junior faculty participation.

Perhaps the most serious conflict of roles is the one between competence and participation. On one side, we have the insistence on collegial autonomy exercised by scholars whose competence has been thoroughly assessed in peer reviews, and, on the other, we have hierarchical decision-making machinery that makes decisions in assemblies constituted by representation of interest groups and executed through a hierarchical administration.

Present trends and future challenges

As pointed out above, well into the twentieth century the university mainly served as an institution training professionals - lawyers, priests and physicians - for the state or the Church. The faculty of philosophy had a preparatory function - to lay the foundations of general competence needed in order to be able to absorb more specialized knowledge.

In the late twentieth century, higher education has assumed new important functions, such as in-service training of professionals. At the same time enrolment, in terms of the proportion of the relevant age-group enrolling, has increased enormously. As late as 1950 the typical percentage entering the university in the industrial countries was 2 to 4 per cent. Over three decades it has increased to typically 15-20 per cent. The university was transformed from an élite to a mass institution. Before the onset of the financial crisis in the 1970s it seemed as if the third stage, universal higher education, would soon be reached. Three features stand out today.

First, a university degree has become a prerequisite for an increasing number of occupations, which thereby have become professionalized. By the fact of being trained in institutions where research is conducted, a professional status has been conferred to, for example, social workers and certain categories of teachers.

Second, a well-rounded general, liberal arts-oriented education has established itself at the undergraduate level. This has particularly been the case in the United States, where the college was established as a substitute for the European *lycée* or *Gymnasium*. In many countries, university studies have traditionally been very pragmatic and goal-oriented. They train civil servants, secondary school teachers, medical practitioners, etc. In a rapidly changing society, where specific competence easily become obsolete, both the public and the private sectors have realized the usefulness of employing well educated 'generalists' who are trained to employ analytical techniques in problem-solving.

Third, whereas before the end of the nineteenth century research played a subordinate role or was even non-existent at the university, it has today (with the United States taking the lead), become professional. Research institutes have a staff of full-time researchers who have considerably reduced or even eliminated teaching loads. This applies particularly to the best universities. Can we expect these trends to prevail in the future? There are many indications that they will. We will point out some of them below.

Professionalization in terms of research-based vocational education will increase in a high-technology and information-based society. This will result in an increased enrolment in tertiary institutions both of young people of 'normal' university age and adults who have already spent a considerable number of years working. Recurrent or lifelong education will become a pervasive element in the life of the majority, particularly among those who already have received further formal education. The collaboration between the university and business and industry will gradually increase in terms of enterprises buying complete packages of courses for their employees.

The need for 'generalists'- persons with good analytical training, keen receptivity and independence - with well-rounded education in leading institutions will increase. In a rapidly changing society there is a need for leaders with a wide margin of adaptability who also possess the ability and the moral power to steer changes towards desired goals.

Research and development will play an increasingly dominant role and permeate both productive and social life. The role of the university is primarily to produce fundamental knowledge that can then be applied not only in the training of professionals but also in the development of new techniques and products.

To what extent should the university provide its students with moral and ethical guidance? Such a task is, of course, extremely delicate in a pluralistic society. But if there is such a thing as an academic ethos, the core of it is the pursuit of truth which traditionally is the guiding ethical principle for research.

Closely related to the task of providing ethical guidance is the critical function of the university. This is a radical task in the literal sense of the word. Academic freedom in terms of freedom of expression has often brought the university into conflict with centres of power, the state or the Church. It is difficult for the state to accept that those who eat from its hand may also sometimes bite it!

Modern society is dominated by industrial mass production of goods and by increased public services in health, education and welfare. There is an expanding body of information that the ordinary citizen must master in order to survive. Such a society needs a tertiary system of education with widened functions and expanded enrolment. Whether the mega-institutions emerging are called universities or not, is a matter of taste. The 'multiversity' has come to stay, at least in advanced high-technology societies.

If higher education develops to become not only a mass but almost a universal good, we can begin to ask what is 'higher' in higher education. But all social systems have a tendency to adapt themselves to new frameworks. We can note how, by differentiation, an élite sector in a mass system is emerging. Certain institutions or programmes stand out as more demanding, and therefore, become more prestigious, such as the study of medicine. In the United States and Japan the co-existence of public and private universities has brought about a differentiation and a 'pecking order' within the system. In the United States the private universities have taken the lead, whereas in Japan the 'imperial', that is, the state universities, are the most prestigious.

In a pluralistic society moving towards increased specialization and differentiation, the need for a common core of learning becomes more urgent than before. The more specialization goes on and the earlier in life it is introduced, the more the individual is doomed to solitude. Thus, more than ever, the goal for institutions of learning is to educate generalists - a professional élite with a common core of learning that provides them with a common frame of reference.

Growing research and development, particularly in modern high technology industry, has given rise to partnerships with regard to training, retraining of staff and research, between universities and private enterprises . Universities have begun to play an important role in in-service training of professionals and in providing educational services to labour-market organisations.

However, partnerships between universities and corporations are not without their problems. The common denominator of these is that university resources are easily diverted from the traditional tasks - the education of students and the conduct of fundamental research. Authorities and students are asking whether the enterprises really are footing the entire bill, particularly for contracted research. It is difficult to estimate how much of the costs are covered by the public purse from which a university is financed. Another problem is that of continuity. Research contracts imply employing staff for projects over a short time span. When a project is finished, the head of a department is faced with the problem of finding a means of livelihood for those who worked on the project. Short-term involvement in 'applied' projects with its effects on continuity is a disadvantage for basic research which works with a distant time horizon.

Innovation in business corporations is not an end in itself, whereas it is usually the case in university research where scholars seek knowledge for its own sake. Corporations operate under the competitive pressure of the marketplace.

Their goal is to serve consumer needs with products, to improve means of production, enhance technical know-how and meet deadlines. Pursuing research for its own sake, as is the custom in universities, is done without the restrictions of the market. The 'market' is the international community of scholars where the value of research results is assessed according to internal science-specific criteria.

The partnership between the university and the government is beset with the same problems, which have become more acute over the last few decades, when universities have contracted large projects with central or local governments. A major challenge for the future seems to be to maintain fundamental research as a principal function of the university. It is the only place where activities aimed at the extension of the frontiers of knowledge is institutionalized.

The university plays an important role in the establishment and preservation of cultural and historical identity. The national leaders in a newly independent country are often university-educated, and the creation of at least one national university has usually been a top priority when a former colonial territory has gained national independence. Studies and research in the humanities, particularly in history, are often of utmost importance in the establishment and preservation of national identity.

Academic freedom and autonomy, particularly *vis-à-vis* the state, will continue to be an overriding issue. This relationship is delicate and has to be discussed, thus, making a distinction between 'dependency' and 'intervention'. Universities in most countries are financially highly dependent on the state, and in many cases teaching staff are appointed by the Ministry of Education. But the scope for intervention can be very limited, most often due to the civil-service status of professors with life tenure.

The academic ethos at Western universities, according to which the overriding objectives of the university is 'to seek the truth', and activity seen as separate from the total responsibility for social and human affairs of the surrounding society or the world as a whole, represents an issue that has become particularly relevant in modern 'risk' societies with their close relationships to research. This issue is closely related to the dichotomy between theory and practice.

A balance has to be struck between endogenous creativity and independence of the dominant intellectual streams from Europe and North America and the universalist orientation necessary in science and technology in attempts to tackle pressing global problems.

Universities in Third World countries, both in their teaching and research, have to address social and human development in their own regions and countries. But they must also help open up the perspectives of their students to problems of a universal character. This again is a problem of a delicate balance between parochialism and internationalism.

General or 'liberal' versus specialized education will continue to be a pervasive issue. It cannot be resolved by comprehensive courses in various disciplines but by the style of learning adopted in the field of specialization. It is concerned with learning, which goes beyond any encyclopedic knowledge in a particular field, a learning centred around intellectual skills and academic values.

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EVOLUTION OF UNIVERSITIES

Yash Pal

In this contribution, I intend to share my personal struggles, a bit of learning and a few insights during the last few years of intense entanglement with the higher education in India.

Some Generalisations on the Situation in India

1. I have come to realise that the system has strengths way beyond what we give it credit for. All extremes are visible - tremendous capability and utter mediocrity. There is also a new vibrancy which is not yet perceived by the accepted academic measurement methodology.

2. The functioning of the system remains rather conservative and noisy, including the exercise of its autonomy. Internal urges for innovation often need external support to fructify.

3. In the short run, the socio-political climate in the country influences the character of the system much more than the influence of the system on the socio-political climate. In the long run the educational system will centrally determine the socio-political structure.

4. Coupling of the system with society is much more evident in social sciences, management and, to a smaller extent, humanities than in science and engineering. This coupling, however, is often at a relatively popular level and, perhaps, rather weak in original thinking and exploration. Indian and regional paradigms of thought do not yet have the requisite pedagogic underpinning to influence formal teaching.

5. Internal interaction between departments of a university is growing in spite of structural impediments. The interdisciplinary programmes tend to break up into comfortable discipline-based islands, at the slightest whiff of a threat to professional advancement or appearance of an opportunity to expand the area of individual turf. The character of the higher education systems is very much related to how this autonomy question is viewed by the educational system and there is no uniformity in this. It varies from institution to institution and region to region.

6. There have been significant achievements in many different areas of science and technology. However, the scale of funding in science and technology education remains low and the demand from the collaboration-based industrial set-up inadequate. In the area of agriculture, however, the demand and supply are fairly well matched.

After independence the university system in India expanded explosively. By now we have 150 universities and over 6,000 colleges. The latter are affiliated to various universities and by and large do not have any autonomy in designing their courses for conducting their examinations. This monstrous system is a legacy of Indian colonial past and has become so ingrained in our minds that attempts to give autonomy to colleges are often resisted for a variety of reasons. However, a movement in the direction has started and may pick up in a few years.

Broadly speaking the measures introduced during the last few years for effecting qualitative improvement in the performance, functioning and personality of higher educational institutions can be put under two headings: Networking and Quality Improvement. It can be said, though, that networking is also meant for quality improvement.

QUALITY IMPROVEMENT PROGRAMME

Quality improvement programme has firstly involved a major effort to raise teacher salaries so as to attract the best scholars to the teaching profession. This is beginning to have an effect though it will take a long time before it becomes measurable. In order to ensure that differing evaluation scales of various universities or local influences do not lead to induction of sub-standard teachers, nationally accredited tests has been introduced to screen out a large number of aspirants for teaching positions. The final recruitment is, of course, made by the colleges or the universities concerned. The screening ratio is expected to be about 1:15.

Fifty academic staff colleges have been set up to ensure that the new teachers are provided orientation, and others have opportunities to go through some refresher courses, at least once in five years. The courses in the staff colleges are given by invited professors from various universities.

Special quality programmes in the area of research and infrastructure funding have been instituted. To be selected under one of these programmes is considered a special honour for a department of a university. It has already been shown that whenever a selective support above a certain threshold was provided, the results have been very satisfying.

A number of positions have been created where teachers are recruited centrally as research scientists on a very selected basis and are placed in the universities. Since these positions carry both the possibility of termination or a significant promotion after 5 years, the scheme is expected to introduce an element of drive in the university system. It is too early to tell but spot checking promises encouraging results.

A large number of research fellowships are granted to postgraduate students who pass a national screening test to enter the university system for their research degrees. The fellowship amounts have been substantially increased and excellent students are beginning to join research. In addition there are several other schemes.

NETWORKING

The strength of a large system can be enhanced through networking. Academic Staff Colleges mentioned above is one example of networking where academics from all over the country join together to conduct refresher courses.

For instance, a special programme on superconductivity brought about a very productive interaction between diverse university departments of different universities. Since the programme was coordinated by a scientific committee, there was extensive sharing of facilities, testing, seminars and joint learning and research. Such cooperative challenges given to the university community can bring about a purposefulness sometimes lost in routine.

One of the networking programmes which has achieved a significant success is the Countrywide Classroom programme for which 13 different university centres contribute capsulated television programmes which are telecast countrywide for two hours every working day. The programmes are meant to enrich learning for people at undergraduate level. The different coordinators meet every month to review, criticize and plan their contributions. This programme has made a difference not only to the undergraduate students but also to people at large and is generally acknowledged as a significant contribution of the university system to the community. What is important in this programme is not only the academic messages conveyed but also the imprint of the physical and cultural environment of the university centres where they originate. This activity was initiated quickly to make use of the facility provided by the first domestic satellite soon after it was launched. The fact that the programme was not an outcome of a ponderous planning period with deliberate training aspects saved it from the tyranny of preconceived structures. The activity also gained a great deal form the experience of SITE-(Satellite Instructional Television Experiment) scarred warriors.

An important innovation, in the area of networking has been made through setting up Inter-University Centres, sometimes around special facilities which none of the universities individually can afford. These centres have been set up as autonomous bodies managed by the university system and are meant to be field stations of all universities with equal access. Such a culture of doing challenging things together is important for the university system and the country at large; this has not been seen often, except, perhaps, during the independence movement. The management issues have been difficult but not intractable. The achievements are coming and it is good to hear university teachers and students from small and large universities talking about these centres as if they were their own, and working to build their facilities.

An inter-university consortium has been set up, through a memorandum of understanding, to use major facilities developed by a national agency. These inter-university institutions are supposed to work pretty much like the ICTP, with their associate programmes, etc., except that they also develop large experimental facilities. It is also planned to set up other inter-university centres in areas such as performing arts, educational media, etc.

One of the most important constraints which the universities in developing countries face is with respect to adequate resources for their library systems. Books and journals have become so expensive that even the best of places cannot afford what they need. The scholars in small, distant universities are the most deprived. Keeping this in view a detailed project has been developed to interconnect with all education and research institutions in the country through a satellite based information and library network. This network will be developed gradually keeping in mind that priority access is given to those who have the least. The network will also provide other services such as bulletin boards, connection to data networks and opportunity for computer gossip between academics who otherwise may never see each other. Such a packet-switching network is, in my view, one of the most essential infrastructure elements for poor countries, relatively inexpensive and capable of meeting critical academic and other needs. I hope this would be implemented in the next three years.

In addition to all these, Open University systems have also begun to grow, with one national university and several regional universities. It is expected that during the next five years the Open University system will begin to cater to about one million undergraduate students in the country.

The Indian higher education system, with close to 4 million students, is run, perhaps, on the smallest per student expenditure in the world. This is a pity because the potential is so large. While India begins to spend close to 1.2 per cent of its gross national product on science and technology, it perhaps spends less than a third as much on science and technology education at college and university level. In a recent study, one found that an optimal system is that where the funds expended on science and technology education are equal to those expended on doing science and technology. The reason for the aberration in India is because we followed the post-war model of setting up of science laboratories outside the university system and in our drive for accomplishments in science and technology we increased our support to these laboratories, perhaps at the expense of the educational system, hoping for quick results. There is no question that even in research, particularly basic research, a rupee sent in a university set up goes much further than in a national laboratory. It is mainly because a national laboratory must necessarily grow old while a university always stays young. In fact, in some sense one can see this even in India. While less than 6 per cent of the science and technology support to provide to more than 60 per cent of Indian scientists who are in the university system, this has a larger number of scientists who have won national awards or are fellows of the Indian National Science Academy. Attempt is on to correct this imbalance and all countries need to learn from this experience.

In the middle of an apparently chaotic situation there is a solid core. Our products do exceedingly well when they go abroad. There is a much larger number who do equally well within the country, though they are not noticed as much because we are used to look through external windows. I believe even that is changing. For example, involvement of teachers and students with programmes of literacy, adult education and grassroots developmental question is increasing. Also with environmental movements, the People's Science Movements draw many people from the universities. On a limited basis we have started considering work of university teachers in grassroots development organisations as qualifying for supernumerary sabbaticals on full pay. This is an attempt, not only to contribute to the environment, but also to bring its specific reality into the educational system when these teachers return.

In sum, I am optimistic that the present churning will produce something much more worthwhile. However, in India, as elsewhere in the world, the days of stable, sedate and unchanging educational structures are behind us. Indeed, sameness even in the most prestigious university, will be seen as a sign of fossilization. We must learn to introduce a net streaming velocity in the apparent chaos. Fighting the chaos itself may be infractuous, because there in may lie the true germs of creativity.

GENERAL CONSIDERATIONS: SPECIFICITY AND UNIFORMITY

Models of Knowledge and Higher Education

Frankly, one gets disturbed by the statement that we should look for specific Indian, Malay, Brazilian and African models. Without disputing that specificities are vital, the important thing is that we have to get away from a derived culture. What we need is that we should be rooted around us and this applies equally to West, East, North, and South. In many developing countries, what we have so far has been taken from outside and implanted there. Some hybridization has taken place in spite of the surrounding orthodoxy. If it is allowed to spread roots and mutations are encouraged, the local values will be soaked in. The transaction between these values and those of universal knowledge would create the right specificity. We must think of such an agricultural model for growth of institutions. And if that is there we do not have to "prescribe" specificities; they would automatically be along with the fragrance of the place where the institution is planted. We do not have to specify that this one is a Northern model and that one African. Commonality is in the requirement that it should grow in relation to where it is.

One would like to connect this way of thinking to the idea of the relative insulation of many university people and decision-makers from the large environmental issues and the changing human consciousness. Perhaps this is due to the fact that the connection between the university and the countryside is not integral to its functioning. If it were, then the communication would occur and the university would be environmentalized. It is basically a question of developing enough self-confidence. One has to get away from a derivative culture while being open to what exists and is developing elsewhere.

In many developing countries, perhaps also in the developed world, there is a danger that people aligned with a certain language, religion or a passion for propagating a point of view may set up institutions and call them universities. A university of this kind may be seen not only as an assertion of a separate identity, but also as a means for propagating preconceived ideas. There already exists several examples of this kind. Everyone has a right to have a platform for propagating one's views. However, a university is not a platform. Universities should be open to explore, disperse and synthesize new ideas. Questioning, dialogue and differences are the essential characteristics of a university, where free minds engage in a transaction of learning, finding out and doing. University as a platform will only limit young minds and lead to demagoguery.

There is, therefore, a thin line between institutions which are locally connected and those which are merely platforms. The latter may have a place in society but they should not be called universities.

One could consider it a defect in our universities that they do not appreciate diversity, they tend towards uniformity. This is why they do not derive their learning material from things and life around them. If they did they would be diverse. It would be a natural bridge between local knowledge and universal learning. They would be able to educationalize the crafts if one likes, not only crafts but other knowledge. One could mention music, for example. It is still not educationalized in India. The greatest musicians are outside the universities while musicologists fill university chairs. One does not come to a university to learn dancing. It is good and thriving outside. Similarly, local medicine based on herbs, plants, and roots, the result of experiential knowledge of an ancient civilization, has not been properly married into the so-called modern system of medicine. People in research laboratories around the world slowly keep on rediscovering the benefits of the active components of various medicinal plants, which have been used for centuries.

One should think that this manner of fomenting and sustaining diversity will add richness to the universal aspect of a university; this will also give it specificity, and recognizable personality.

In fact, cultural diversity has the same kind of importance as ecological diversity. Just as the phrases of life developed by nature over millions of years are important for the future of mankind, phrases of culture produced by different segments of humanity are equally important for our cultural evolution. Maintaining does not mean maintaining as it is, but what it implies in essence is that universities in different part of the world could have somewhat different architectural (nothing to do with architecture of buildings) personalities. That is the only way they will reinforce and enrich each other. Even the world of higher education could be looked at as a tapestry showing many varied manifestations rather than a dull uniformity. One has to work at it consciously because there are many forces in the world which will push the other way. Real creativity lies in getting the essence and not in demanding replication, because uniforming forces are very large and strong, and pose a challenge to the true spirit of universities.

There should, however, be a note of caution that while talking of diversity we might have a tendency to become patronizing. Without changing our ideas about what is good and excellent, we might condone mediocrity by saying that considering the circumstances of a country or a region the level of achievement is enough.

Respect for diversity also implies that one should be conscious of the glasses through which one looks at things. One also needs to develop a specific measurement methodology, including the parameters and values of different regions. One cannot define excellence in terms of what already obtains in some metropolitan countries and universities and proceed to dilute the requirements of excellence for other regions while keeping the scale to be the same. The main point is that the education system in every country and region should seek to be rooted, to be grouted in that place while being open to the world, and develop its own scales of measurement. This would apply both to the developing countries and to industrialized countries. Diversity can exist even in developed countries, from one university to another.

There is too much of an influence of the so-called mainstream ways of thinking and doing, not only on the developing countries but also within the metropolitan countries. Yet, the name university implies that one should be open to what comes from outside. But unless one is locally connected one does not develop a personality, nor will have specificities. This way of looking at the issue will take one away from the problem of defining geographical scales, scales based on level of development; instead, it could provide one with a methodology for looking at everyone, in a developed or developing country in a uniform way.

The questions of life-long education, adult education and access, are central to the whole question of the future of universities. A lot of learning will have to be off campus through informal systems and by being soaked in a sea of information all around. And yet, one important characteristic of a university may be hard to provide. How does one bring in the chemistry which happens in a good campus? Chemistry between all manner of unlikely people coming together? How does one incorporate it in distance education?

The concept of uncertainty is important. It is very centrally connected with our exploration at to what universities ought to be. We have to function in a world of uncertainty many a time - even scientific uncertainty - and what we require is collateral knowledge, a collateral wisdom which arises from other connections, if one likes, a lateral vision, other aspects, other knowledge, other knowing, besides what is scientific knowledge. There are many examples where one can show tremendous usefulness of relative ignorance, if one has an appropriate collateral knowledge. In the area of meteorology and weather forecasting for farmers, for example, and many other cases. Political science, economics and other social sciences demand a capability to function within a universe of scientific uncertainty and that is where a role of a university comes in. It must provide skills and environment of exploiting collateral information, knowledge taking cognisance of what is certain or uncertain scientifically. We will need more of this capability as we move forward towards an increasingly complex future.

TRANSFER OF KNOWLEDGE

One now turns to the broad area of transfer and transmission of knowledge. If one studies the economic and social structures of many developing countries one would be amazed to find that the contribution to economic activity and community services by people who learn through non-formal transfer of knowledge and skill is exceedingly large. Most of our people who flay animals and repair shoes, who are carpenters, masons or builders of huts and shelters, who deliver children and do many other things, have not acquired their skills in schools and colleges. Potters, all manner of craftsmen, weavers who make beautiful fabrics, which earn us much-needed foreign exchange, those who practice local medicine and, of course, those who grow most of our food have all acquired their skills, knowledge and aesthetics through channels which are not even recognized.

This is knowledge whose existence and mode of transmission is not given proper validity or respect, nor is it built upon or incorporated into formal learning systems. We have to ask whether the universities in our countries have a role to seek out this knowledge or fold it in their own curriculum or do we find other recognized systems which might try to upgrade and give responsibility to this mode of generation and transmission of knowledge. Usually this tremendous resource, instead of being enhanced, is demolished by the setting up of new institutions. We do not build upon what exists, including the pace and the grammar of the communication language, but we want to replace it. And then we complain about the alienation and irrelevance of organized systems.

One personally feels that universities in different regions must address themselves to this problem. They may have to design courses and curricula and methods of teaching which smoothly blend with the learning structure which is already in place. Traditional approach in many of our universities has been to disregard this "low" level of knowledge and try to write their wisdom on supposedly clean slates. However, there are signs of change coming. One finds out that a lot of university people are beginning to discover the merit of these unorganized, ground-based systems, and are discovering that there is a vast amount which needs to be understood and researched. New activity is being spawned within academia. The pedagogy is still a little weak and needs to be developed. Such activity will necessarily require a great deal of specificity.

Then, a few words about the availability of learning materials. What is beginning in this regard is a serious threat to the future of universities - indeed to the whole future of learning. A large part of the world, students, teachers and scholars, is going to be deprived of new learning materials unless something drastic happens. I can confidently predict that the situation will come to a head and something drastic will happen. It might lead to breaking of copyright laws or parochialising of learning. Between the two, if there was a choice, the former would be preferable.

Many developing countries have ended up acquiring fairly good competence in training excellent engineers, doctors, teachers and researchers who find immediate employment in industrialized countries and indeed do rather well. Perhaps, this is because of a mismatch between training and job opportunities, some mistakes we have made in setting up institutions in our country or lack of contact with real problems in our country during the training period. But where do we go from here?

The cost of training a good engineer or doctor in India is in the order of $2,000 annually. In the United States it is perhaps 10 to 20 times higher. The difference primarily is from the fact that with the existing rates of exchange we pay our good teachers so much less. Supposedly, if one takes the responsibility of training a large number of engineers and doctors from the Western world and charge not the real cost in the West, but say about $15,000 per year, one could certainly gain through this knowledge export but the West would also gain because of lower costs. The present Indian curricula seem to be quite suited to the Western market as is clear from the fact that Indian products do exceedingly well when they migrate. Incidentally, for doctors, much more clinical material would be available than in their own countries. If Britain, Australia and other countries can charge a realistic fee from foreign students why not developing countries like India, Indonesia, Brazil, Malaysia, etc., do the same? How is it different from the fact that the books which we import from Western countries cost us their actual price of production plus profits? Also how is it very different from the export-led development strategies that have been followed by several countries in recent years? Somehow, in India, we feel guilty about charging a realistic fee for education, not anywhere close to what it costs, leaving aside charging what it would cost them to be trained in their own countries. Any income which results from such an activity could be ploughed back into our own educational system for teaching our own people.

Like many other countries, we have also started producing educational television programmes. Currently a number of universities are collaborating to provide two hours a day of undergraduate level enrichment-oriented television programmes on the national network. This is the so-called Countrywide Classroom Programme of the University Grants Commission of India. We are spending about $3,000/hour for programme generation. Clearly this is trivial compared with the cost in the West; it is lower by a factor of 10 or 20. We could put in a little more animation and demonstrations and spend five to six thousand dollars an hour, which is still much less than one would spend in Europe or North America. When we are talking about the changing face of education, distance learning and open learning systems, this material could be as valid an input as anything else. Our cost is less, again, because we pay our intellectual resources so much less. But that is our capital. If we use this capital more efficiently, we will help ourselves and help the whole world of learning. This will be true sharing of strengths and this sort of approach may bring about somewhat better balance in the flow of information and knowledge between countries and regions.

Here's an example. We started a project to select 300 of our best teachers and with their help, prepare video lectures to cover undergraduate course in 15 subjects. These would be lectures given in front of a small class and not the usual video programmes. They are primarily meant to provide examples of how some good teachers teach a subject. The project would be completed within a year and the whole cost including the honorarium to teachers and coordinators is likely to be 10,000 to 15,000 rupees per hour which is less than $1,000 an hour. Clearly the notes of these lectures can also be produced and distributed. We intend to put these 5,000 video tapes in colleges, video libraries, etc. It is obvious that such material could also contribute to education worldwide.

UNIVERSITIES IN THE POST-INDUSTRIAL SOCIETY

Edward W. Ploman

Current analyses of the changing situation of universities often go beyond immediate pressing problems, such as those of resources, or the relationship between universities and other social actors. Those issues set in a wide context basically focus on the functions of the university in the post-industrial society. One can quarrel with this non-descriptive label which is often used as a somewhat facile shorthand to designate a number of profound changes in contemporary society: the movement towards new technologies that appear as technologies of knowledge and organisation rather than physical material and energy; the increasing recognition of a move beyond industrial economic patterns to what has best been summed up in the concept of the "service economy". The implications of the global level for patterns of work and employment, for the division of labour and international competitiveness, are to a large extent focused on questions concerning the skills needed in this new situation which is at the same time beset by the crises of environmental degradation or worse, and of the need for development and economic growth that are ecologically and socially sustainable.

It is in this perspective that a recent study by the OECD presents features that are valid beyond the particular circumstances of the OECD countries. The following summary draws upon the study entitled "Universities Under Scrutiny", published in 1987.

Context

Any appraisal or reappraisal of the role and mission of universities must be clearly set in a context, or rather in a set of contexts or perspectives to be meaningful. Of these, the policy context is crucial; without it any reflection of universities would take place in a vacuum. Therefore, attempts to provide context are useful in general terms, beyond the specific circumstances that have prompted particular studies or reflections.

A recurrent theme in a policy perspective has been well expressed in the recent OECD university study: "Above all, there is a pervasive feeling that the current problems and those likely to afflict higher education systems in the years to come are not merely related to questions of resources, numbers, and low efficiency or to mismatches between supply and demand of graduates. They do pose a more fundamental question concerning the very purposes and functions of higher education institutions in post-industrialized societies". (OECD, 1987:3) Thus, despite their differences, universities in OECD countries are seen to confront common problems which derive from a central fact: "they are being called upon to play an ever more important part in the restructuring and growth of increasingly knowledge-based economies..." In so far as the shift to a more knowledge-based economy is to varying degrees affecting all countries, the statement may be seen as generally valid; the specific OECD country issues which in contrast might not be generally valid, include pressure from cuts in public spending, demographic downturn, diminished legitimacy, and the consequences of rapid growth of higher education in the 1960s and early 1970s followed by stagnation or even downturn.

Of the policy issues related to higher education mentioned in the OECD study there are several others that seem to have a validity beyond the OECD country context, i.e, the highly industrialized countries. Thus, in discussing the relationship between education and work, and the impact of the changing employment situation on higher education, the following analysis appears to be of general interest: "Thus, whilst policies are now oriented firmly towards closing the gap between education and work, towards modifying individual consciousness of the differences between them, towards making higher education 'relevant' to adult life, and work experience, 'educative' rather than alienating and degrading, the conceptual and organisational apparatus with which we work still emphasizes the separation of the two spheres. This is a state of affairs which makes for real difficulty in discussing some of the problems that at present face governments and decision-makers." (idem., p. 11).

Missions and Functions

Of particular interest in the OECD study are the considerations concerning missions and agenda of the university.

In a historic perspective, the university is seen as having proven its resilience as an institution. "Economic, social and political organisations have come and gone. Some that have survived have changed utterly in function, role and structure. Yet even in the newest, poorest and smallest of the universities of the modern world, there survive missions, ideas, values, conventions and practices which link the lives of staff and students to those of their thirteenth-century predecessors in Paris, Oxford, and Bologna." (idem., p. 13).

> "Thus continuity based on three strands - the pursuit of truth, the preservation of culture, and the induction of the young - contribute to the strength of the thread that links the complex life of modern universities to that of their medieval forebears". (idem., p. 13) Its thoughts, "the catholicity of a university's mission, the variety of roles that it performs, the many different functions that it serves which contribute both to its capacity to survive and to the problems it encounters in a world in which the clear definition of tasks, and the evaluation of performance in their achievements, are an increasingly common condition for public and political support". (idem., p. 14)

Continuity with pressure for change, internal and external. This is the background for the identification of the contemporary roles and functions of universities. The OECD 1987 study discusses ten principal functions that universities should fulfill today in OECD countries:

1. Universities are first and foremost expected to provide general post-secondary education, of a kind that will challenge and develop the capacities of the ablest groups of school dropouts and, in some countries, through extra-mural and continuing education provision of adults. Even with the recognition of the importance of this function, there is a widespread sense of it having suffered as a consequence of specialization, a stronger emphasis on research, departmental autonomy and a lack of interest in the curriculum of higher education.

2. The next current concern is the pursuit of research and scholarships. The proportion of national basic research for which universities are responsible varies markedly among countries but in most OECD countries universities as distinct from other post-secondary educational institutions are provided with resources necessary for the performance of a research role.

3. A third function of universities is to assist in fulfilling manpower needs of the 'expert society'. The professional formation of medical doctors, dentists, veterinarians, teachers, lawyers, priests, engineers, computer scientists, economists and administrators form an important part of the work of universities in most countries.

4. Fourth and related to the last function, is the provision of high-level specialized education and training for future members of the academic profession, and the dissemination of research results which may be of importance to members of many occupational groups.

5. Governments and the republic increasingly look to universities to assist, through their research, education and training functions, in strengthening the competitive role of the economy. They are expected to encourage innovation, show how research results can be applied and yield a useful return. "Potentially, and sometimes actually, there are clashes between the national interest, so defined, and the universality and internationalism characteristic of many disciplines and professional fields. Academic and economic imperatives by no means always point in the same direction." (idem., p. 17)

6. Despite a trend in recent years to open admissions to adult students, universities by careful selection of suitable candidates, and/or through frequent testing and elimination and by stringent final examinations, act as a screening mechanism for those who will subsequently seek high-level employment in public service, industry, commerce and a variety of professions.

7. Linked to the screening function is that of providing an avenue of social mobility "for the able sons and daughters of the working class". (p. 18)

8. Universities are expected to offer a variety of services to their region and immediate community. Governments have encouraged a distribution of universities right across their territories and have funded and supported universities as a way of stimulating development in less attractive and desirable areas.

9. Universities act as exemplars of certain national policies such as the provision of equal opportunities for women and racial minorities and the nurturing of such values that are involved in the "transmission of a common culture and common standards of citizenship". (p. 18)

10. Universities prepare men and women for the subsequent performance of leadership roles in society, for occupying positions of influence in public life, in the professions and, increasingly, in industry and commerce.

"These ten principal functions are fulfilled by universities in an economic, social and political context that is in many countries radically different from that of ten - even of five - years ago. As a consequence, the agendas of policy-makers, university senates, research funding bodies and faculty associations increasingly feature discussions of issues such as:

- resource constraints and demographic downturn;
- the restatement of institutional mission and purpose;
- the implications of changes in clientele;
- the reform of the undergraduate curriculum;
- the organisation and funding of research efforts;
- relations between universities and industry;
- the future of the academic profession; and,
- the improvement of the quality, efficiency and effectiveness of universities." (idem., p. 19)

Quality Control

Recent developments are seen to have combined to make the term 'quality' as ubiquitous in the education discourse of the 1980s as was 'accountability' in the late 1970s and 'participation' in the first half of the decade". (idem., p. 79) Interesting in this context might be the tests Kerr identified as being "generally useful" in evaluating the overall quality of different systems of higher education. These were:

1. "The quality of scholarship in international competition - judged by the value placed on the published research of a nation's faculties in worldwide intellectual circles and the general acceptance of the advanced degrees from the country's leading institutions;

2. The ability to secure talent from the total population with regard to class or racial characteristics...;

3. The provision of technically-trained persons to fill the needs of industry, agriculture, government and welfare services...;

4. The provision of an opportunity for a liberal education, appropriate to the times, to undergraduate students;

5. The quality and balance of service (consultation, policy, proposals, etc.) to the several segments of society...;

6. The quality and balance of constructive criticism of society;

7. The effectiveness of the governance of higher education...;

8. The degree of popular support for higher education generally and from its alumni in particular..."

THE TASKS FOR THE FUTURE

Crisis and Criticism

As already noted, the university has in its essential form demonstrated a great capacity for survival. "Yet the post-1945 literature of the university is redolent with a sense of crisis. Post-war expansion led commentators to write of a crisis of values. The literature of student unrest at the end of the 1960s was similarly concerned with values and also spoke of a crisis of governance. As increasing priority came to be given in the 1970s to science and technology, and large numbers of students opted for vocational subjects, a crisis was declared in the humanities. Much contemporary discussion is of how economic recession...has generated a crisis in funding." (idem., p. 19)

Problems of serious concern to academics include the continued ability of societies to fund universities to fulfill a wide range of teaching, research and service functions; the place that the university will have in the future-knowledge society; pressures upon universities to adapt their work to what are seen as pressing short-term social and economic needs; the possibilities of conflict between academic imperatives and those of business and commerce as closer links with industrial research interests and resources become increasingly significant to institutional viability. While universities in OECD countries retain a large measure of freedom from direct government intervention, their autonomy is under pressure from demands for greater relevance, for effective use of scarce public resources and a clear commitment to industrial success and professional competence.

"Taken together these and related problems add up to something even more worrying in policy terms than some of the alleged crises of the recent past. Earlier events were often of a kind that in the last analysis could be dealt with by academics and institutional authorities themselves. Today's difficulties implicate governments, local authorities, industry and other social organisations much more directly, and raise important questions about university autonomy. Uncertainties of mission and purpose are more easily dealt with in conditions of growth than in those of steady state or actual decline...External stress upon accountability, relevance, clearer priorities, selectivity and performance can create an atmosphere of anxiety and defensiveness within academe inimical to the orderly pursuit of teaching and research. (p. 92)

"Whether we regard the university as an endangered institution depends upon our beliefs about the central purposes and values and our assessment of how these are affected by changes in society, policy and economy". (p. 94) With due regard to many caveats, it has still seemed possible to identify a number of current or incipient 'dangers' common to all or a significant number of OECD countries. These include:

- the failure of policies concerning the role of universities within a much expanded overall provision of post-secondary education;
- lack of interest in the overall purpose and design of the undergraduate curriculum;
- the role of the university in basic and strategic research is endangered by institutional diversification, the increasing costs of some lines of work, shortage of resources, and a trend towards establishing self-standing research organisations unimpeded by traditional academic job specifications and tenure;
- the universalistic orientation characteristic of elite systems have survived but often serve to weaken regional ties and undermine local

political support for universities;

- rapid expansion followed by stagnation and decline has serious implications for the academic profession endangering quality, responsiveness, morale and conditions of service; and,
- dependence on government support at a time of economic recession and increased competition for resources from other sectors has fueled centralist interventions and endangered the independence and range of initiatives of university systems. Efficiency, effectiveness and values for money feature prominently on official agendas.

Thus, in summing up, the main dangers are seen to be "not so much institutional extinction as failure to balance clarity and control of missions and objectives on the one hand with, on the other, freedom to develop new purposes and activities; failure to promote and give status to high-level discussion about the whole - the undergraduate curriculum, the structure of the academic profession - rather than parts - physics and classics and next year's pay raise; failure to recognize that too much emphasis on new forms of support - contract research arrangements with private industry, highly specific government grants - create dependencies that may prejudice the essential critical role of the university; failure to reconcile the active leadership and effective administration needed in turbulent times with the intrinsically 'bottom up' character of university governance, the unpredictability of discovery, the mysterious serendipity of which knowledge and understanding advance. Policy makers, administrators and academics have a shared responsibility to recognize and counter such risks to the future of the university".

Current Policy Issues

"During the past thirty years, there has been a substantial expansion of the demands and expectations placed on the system of higher education, with a number of new dimensions added to the traditional instructional, as well as scholarly and professional functions of these systems. This has resulted from the cumulative effects of a much larger and varied student population, the rapid pace of scientific and technological development, the enhanced importance of innovation and knowledge in modern societies and the economic importance of a skilled labour force." (pp. 97-98)

Even though the future level of financing cannot be foreseen, the prevailing position among public authorities seems to be that the structural reforms that are needed in response to changing external demands cannot involve the creation of substantial numbers of new institutions. "Instead, the existing systems should be encouraged and helped to adapt." (p. 98) Universities constitute the major, if not the leading, components of higher education systems and are thus expected not only to respond to, but also to anticipate external pressures and expectations. They have to do this without neglecting most of their traditional tasks which continue to be essential to their very nature and societal mission. The challenge, therefore, is to combine continuity with change, to expand and enrich the role and functions of universities while maintaining their contribution to the traditional objectives. In particular, universities need to retain their uniqueness in terms of their commitment to the disinterested pursuit of knowledge, the spirit of free enquiry and the preservation and transmission of society's cultural heritage." (p. 98.)

The Role of the University in Asia in the 21st Century

Ungku A. Aziz

The basic purpose of this paper is to provide a framework within which certain special features related to the design of universities in the Asian region in the 21st century may be discussed.

The underlying suggestion that runs through the following discussion is that, because the region has unique historical experiences the designers of institutions of higher learning (IHL), need to pay attention to these experiences. Briefly the failure of IHL to play more significant roles have been partly due to the habit of IHL designers who have tended to copy closely traditional western models. Frequently, they have ignored certain characteristics of Asian culture and societal development.

It should also be realized by those who would prepare general purpose designs of IHL that although most of the countries of Asia can be classified as developing countries, the essential cultural base of Asian society is utterly different from that of the other developing countries, such as those in Africa or among the Pacific Islands.

If it is said that the Asian region is an "emerging region", then it is suggested in this paper that the Asian situation is in the process of emerging from a period of "dark ages" or a period of "interruption". It is not emerging from a backward primitive culture. The working people, male and female, from virtually all parts of the region are able to participate in production processes involving high technology (e.g., electronics, high rise building construction, or biotechnological projects). Within a short period, Japan and the newly industrialized countries have been able to create innovations that challenge many western products in the global markets. This paper examines the causes why such rapid progress has been possible. It follows that suitably designed IHL could accelerate this rate of progress in several sub-regions of Asia.

To begin, some definitions need to be clarified. These include Asia as a geographical region, the time frame and the term "institution of higher learning".

The needs for IHL in Asia should be considered both in broad terms as well as for specific sub-regions. Bold efforts must be made to forecast the kind of needs for IHL in the 21st century as well as the technology that may be available in addition to the political and economic conditions that might prevail at that future time. It is the perception of this chapter that many proposals for the design of a model of an IHL for Asia in the 21st century need to take full account of the cultural and historical base from which the current Asian society has evolved. This is the essential feature of the concept of the "uniqueness factor" in this paper.

The Asian region is a large area with a recorded history of at least 4,000 years, possessing common features that have been known to have existed during the last 2000 years. Based on this we can derive certain ideas about the elements that need to be considered in the formation of a design for a basic model of an IHL for this region.

Initially, one may have the superficial impression that the region has such a diversity of ethnic groups, languages and cultures that have flourished during the last two millennia that any common trends may be rather difficult to discern.

However, one of the aims of this paper is to suggest to the reader that certain patterns of unity can be found with the proper perspective.

These patterns of unity in diversity can be found by examining the region from three points of view.

1. The genesis and expansion of the important religions and philosophies in the region.

2. The great monuments that symbolize unity in diversity that are found in the region, especially in Southeast Asia.

3. A world view of Asians, especially their attitudes towards foreigners and such notions as the other world.

In the larger context of time and space it should be possible for the reader to appreciate that this is the region where the great religions of mankind emerged. Chronologically, these include Hinduism, Buddhism, Judaism, Christianity and Islam. The system of beliefs on Taoism and the philosophies of Confucius and Lao-Tze are also from this region.

The cosmology of these religions is concretized in great monuments such as Borobudur in Indonesia and Angkor Wat in Cambodia. Impressive mosques abound throughout the region from Iran to China. As an example managerial competence and capacity for a high level of technology there is the Great Wall of China which is the largest construction man has ever made.

It is difficult to rate the cultural level achieved by countries in the different parts of Asia through one thousand years that formed the time frame of this paper.

There were centres for higher learning in India, Central Asia, China and Sumatra. However, none of these have survived in the way that the University of Al Azhar in Cairo has survived for over a thousand years. Their existence is known indirectly through reports by travellers, scholars or monks who visited them. Fa Hsein, Ibn Batuta and Marco Polo are three individuals who come to mind.

In a negative sense, the cultures of the peoples who constructed the pyramids in Egypt or the Aztecs in Central America no longer have any direct links with their descendants who live today.

In the case of Asia a variety of constructions exist and the descendants of those who conceived and built these structures main the original cultural traditions. For purposes of illustration we shall consider six examples of such structures:

1) The Great Wall of China
2) The Borobudur in Java
3) Angkor Wat in Cambodia
4) Mosques in persia and Central Asia
5) The cave paintings in the temples of Ajanta and Ellora
6) The irrigation systems of Cambodia and Sri Lanka.

These have been selected because they are not only huge projects involving the administration and organisation of immense resources of manpower and materials but were undertaken over several decades and in some cases, over a century. Doubtless many other projects could be certainly selected.

The thoughts that arise from contemplation of the successes in constructing these magnificent monuments are not so much the scale or the mind-bogging attention to detail but the fact that the projects could be conceived and executed over a fairly long period entirely without any such tools as information technology, prefabrication and heavy duty machinery. In short, there had to be systems for keeping records, for training architects and technicians and other skilled workers. There is much evidence of the transfer of technology from India and China to Southeast Asia in construction, weaving, merchandising, etc. Nevertheless, what is significant for the purpose of reinforcing the thesis of the "high cultural base" found in Southeast Asia, is that wherever technology was transferred it was rapidly adapted into local modes. Furthermore, invariably we find that local aesthetics dominated the decorative features of the structures.

In the quest to design a model for an IHL in the region in the 21st century we may examine the views held by the world on the religions and cultures of the societies of this region. We may find that, especially in Southeast Asia which is the core of the region, they show the following characteristics:

i) Philosophies are founded on the notion of unity in diversity and tolerance of differences.

ii) Tolerance of minority communities who can co-exist in peace.

iii) Peaceful attitudes towards foreigners who come mainly as traders and occasionally as missionaries or teachers.

iv) A dualistic world view as well as an exceptional appreciation for learning including a high degree of receptivity to new ideas in the fields of religion, technology or commerce.

v) Cultivation of aesthetics, diplomacy and courtesy besides commerce.

The way in which Hindu and Buddhist concepts of cosmology and learning have been integrated into Borobudur and Angkor are concrete evidence not only of the transfer of technology from India to Southeast Asia but also the local administrative capacity to manage large construction projects over long periods of time.

Today the motto on the national emblem of the Republic of Indonesia is "*Bhinneka Tunggal Ika*" which implies unity in diversity. The same idea is to be found in the aesthetics of Islamic art (*Alkathrah fil Wadah* and *Al Wahdah fil Kathirah*) or the synthesis of variety in unity and of unity in multiplicity.

The evidence of tolerance of minority communities can be found in the records of communities living in caravanserai, at oases and cities along the Silk Road in the centuries preceding the development of the sea route between East Asia and West Asia as well as Europe. The centers of international commerce were at Malacca in the 14th century, Brunei and Makassar in the 15th century. Traders, scholars and missionaries could move freely through the region along the journey from Canton to the Gulf of Hormuz. Marco Polo and Ibn Batuta have left interesting records of the centres of trade and higher learning that they visited in China and Sumatra. The eunuch admiral Cheng Ho who made six return trips between Canton and the Gulf of Hormuz records the pattern of life and diplomatic courtesies that existed in the region before the 16th century.

If rulers and systems of administration were primitive or barbaric it would have been difficult for traders and missionaries, not to mention architects, to induce local people to consider and in certain cases to adopt their ideas about cosmology, the nature of the soul, architecture, literature or principles of commerce.

In sum, at least 500 years ago, there already was a solid cultural base for the incoming ideas to be grafted on to.

Additionally, we notice that in the realm of the fine arts, peoples of the core region were able to create motifs, patterns and designs that were unique and are not found elsewhere in Asia. This is not to say that forms and patterns from China and India were not intermingled with those found in the core area.

The Greeks knew of tin, gold and precious stones as well as exotic feathers and scented woods that were gathered and exchanged in the core region besides occasionally being carried along the Silk Road. The Persians and the Arabs travelled by land and sea to and from China in search of silk, spices, camphor, sandalwood, etc.

We have evidence of one manuscript that has survived from the 16th century which gives us some idea as to the level of thinking that was reached at the time.

The possibility of reading documents written over 400 years ago in Southeast Asia presents us with an opportunity to appreciate the intellectual level prevailing at that time. The manuscripts would also reveal aspects of thinking patterns and levels as well as formation of a particular language.

Such manuscript is the *Aqaid* of Al-Nasafi which was written in Arabic with interlinear translation in Malay. This is thought to be the oldest known Malay manuscript, dating back to 1590 AD or 998 AH. This 43-page manuscript also bears inscriptions in Latin presumably written by its European owner, Andreas Mullerus Greiffenhagius.

The contents of the manuscript consist of a statement of Islamic doctrine by Abu Hafs Umar Najm Al-Din Al-Nasafi, who died in 1142 Ad (537 AH).

The existence of Andreas Mullerus is documented in relevant bibliographies and encyclopedias. The manuscript is discussed by Syed Muhammad Naquib Al-Attas in his book entitled "The Oldest Known Malay Manuscript: A Sixteenth-Century Malay Translation of the Aqaid of Al-Nasafi" published by the Department of Publications, University of Malaya, Kuala Lumpur, 1988.

Syed Muhammad Naquib sums up the philosophic discussion in the Aqaid in the following words: "the Aqaid begins with philosophical statements on the real essence of things; on the possibility of knowledge; on the causes of knowledge; on the objectivity of knowledge; on the causes of knowledge; on the atomistic metaphysics of substance and accident and the continuous creation in explanation of the theory of the universe; on the nature of God and on man's self.

For purposes of this paper two points are significant. Firstly, it is demonstrated that at the time the Malay language could already be used as a medium for the discussion of such abstruse subjects as the existence of God or the nature of the universe or the contradiction of the Sophists.

Secondly, although the manuscript may be the only surviving document of this type from such an early period, it could be assumed that it was a piece of teaching material for higher learning.

The date indicates that this manuscript was written after the Portuguese had occupied Malacca. Syed Muhammad Naquib states "Acheh had become an important transit point for Muslim trade between Muslim lands in the Northwest, India and the Far East. Along with the merchants and traders there had come to Acheh scholars of Islam and men of letters, and by 1560, Acheh had become the most important centre of learning, culture, and commerce in the archipelago, replacing Malacca as the spiritual and intellectual capital of the Malay world". (Ibid, p. 32)

This piece of teaching material survived because it was obtained and carefully preserved by a German scholar who studied and wrote about oriental subjects. Today, it has been brought to the region for study by regional scholars who appreciate its real significance.

The dualist world view of Asians as compared to Europeans then and now is often overlooked by European scholars or Asians who have been too immersed in European scholarship. Whereas European culture is scientifically oriented with a single empirical orientation, the Asian viewpoint involves this world as well as the other world.

Specifically, for purposes of this paper it is suggested that European scholars are largely influenced by the long struggle to free the university from the clutches of the church. They have great difficulty in conceiving a university that could have a bilateral acceptance of the mind as well as the soul, both of which need to be attended to by the university.

There is no need to be involved in passing judgment as to which system is better or more correct. It is simply a need to realise that the traditional 20th century world view of an IHL needs some modification if it is to become an integral part of Asian society.

The cultural and religious aspects of the region should not be omitted when constituting or organising a university.

The Interruption

We need to consider certain aspects of history in order to understand why the relatively high levels of culture and learning which existed in Asia up to the end of the 15th century were interrupted. This interruption has been more or less neutralized and there is a possibility of a renaissance of Asian learning. The hope that the new IHL may play a catalytic role in expediting this renaissance is the main *raison d'etre* for this paper.

For purposes of understanding the reasons for the interruption of the natural evolution of culture and civilization and how it affected the beginning of higher learning in the region, we need to comprehend, however, what was interrupted. This understanding will help us neutralize the interruptions and generate a momentum for positive interaction between higher learning and culture as well as economic development in the 21st century.

Incidentally, it is conceivable that had there been no "western" interruption, the cycle of decline would have reached its lowest point and begin an upturn. In regards to Japan had it remained in a state of very slow development for two and a half centuries, it could have met the west and absorbed its ideas and thereby experience a period of growth patterns. This is noticeable in the history of the Meiji Restoration and Japan in the post-World War II era.

This interruption can be viewed from five points:

1. There was the Balkanization or subdivision and fragmentation of existing political systems and their replacement by puppet regimes.

2. There was a destruction of centres of international trade which were sources of economic wealth which could support sophisticated cultural systems. Subsequently, these centres of international trade were replaced by new locations which were wholly oriented for the benefit of the colonial conquerors. The cultural implications of this substitution were to intensify the downturn of the cycle of civilization.

3. The substitution of local languages which were being used in systems of higher learning by European languages which were used for commerce and administration and which were taught to the natives at a simplistic level.

4. The reorientation of many of the Asian elites from an Asian to a European world view.

5. The propagation of myths about the Asian people that rationalized the European conquest and promoted cultural substitutions referred above. These myths include the lazy, dishonest native, the spendthrift people, and anti-scientific attitudes. These were supported by the idea of the Malay as "nature's gentleman", the "noble savage" who loved the simple life, etc. In Southeast Asia there were Malay sovereign systems centred on Malacca, Brunei and Sulu at different times. These were divided up by the

Spaniards, Dutch and British so that to this day, very few scholars can conceive the notion of Malay cultural unity throughout this region. This was reflected in the use of the Malay language as a *lingua franca* for the whole region; the production of unique patterned textiles made from silver and gold thread-weaving known as *kain songket* with floral designs representing nature and geometric or arabesque patterns which were also found in wood, precious metals as well as the decoration of palaces, royal buildings and dwellings of ordinary people; the architecture of boats used for trading even as far away as Madagascar and islands in the Pacific; the sophisticated technologies of fishing boats and gear; the techniques of food preservation all indicate a unified society with a relatively advanced technology.

Whatever written evidence remained indicates a capability for teaching and learning complex philosophies. Fortunately, these ideas and patterns are also etched in stone monuments such as Borobudur and Angkor Wat.

With the replacement of Malacca by Penang and Singapore thanks to the British, international trade was manipulated by the Europeans. Malacca was the focal point for traders from India, Persia and Arabia who met the Chinese under the aegis of the Sultan of Malacca. Macassar was a major centre for the spice trade in Sulawesi. After its conquest and destruction by the Dutch, Batavia (now Jakarta) replaced it.

Some may consider it controversial that a national language is a prerequisite for the emergence of a national culture. In this paper, it is suggested that by crippling the educational and administrative system that existed in the national language, that is, the Malay language, the Dutch and British effectively stunted thinking, teaching and writing in the Malay language to a rather low level. One effect was to cut off the language from an international relationship to advances in knowledge elsewhere. This is not the place to examine the language policies of the various colonial administrations in Asia. It is necessary to stress that only after the interruptions had been neutralized were the systems of higher learning able to reenter the mainstream of universal learning with increasing access to knowledge for development as well as spiritual life.

It is not suggested that the scholars of Southeast Asia should now become so chauvinistic or narrow-minded that they will shroud themselves in their national languages and try to avoid contamination by any foreign languages. If we could return to the pre-15th century scenario, we would see that the scholars, traders and administrators of the region were very open-minded people and most eager to learn foreign languages that would open the doors to knowledge, both temporal as well as spiritual. There is evidence of their enthusiasm to learn Sanskrit and Arabic and even to adopt and adapt the scripts of these languages where it seemed to lead to better systems of communication.

The reorientation of world views is another area of contention. However, it is suggested merely to provoke, and for no other reason, that the world view of many of the Asian elites needs to be somewhat redirected so that they do not see their own cultures and peoples through extra-Asian eyes. Here again, a suitably designed regional IHL, not necessarily in one place, but in many acceptable locations could help foster this reorientation process.

What is the non-Asian or Euro-American point of view? From the Greek civilization to the Renaissance onwards till the age of Enlightenment culminating in the modern era, the western view is founded on the notion that man should try to discover knowledge especially in the sciences so that he could control nature for the material welfare of mankind. The concept of excellence fueled the search for better ways to attain the highest rate of progress in institutions of higher learning.

There is a fundamental assumption in European higher learning that ultimately everything can be understood and explained. This approach is made possible by separating faith from empirical knowledge.

To simplify the thesis advanced here it is suggested that in Asia, from Iran to Japan, the search has been to find ways for man to harmonize himself with nature and seek ways to inner peace by improving relations not only with this world but with the other world as well. In this context, the other world means the one that cannot be perceived by our senses and cannot be known or observed objectively.

In the Asian manner, man tries to understand nature while also accepting the mysteries or unexplained phenomena as a valid part of life. Acupuncture is one dramatic example of this view. It could be said that while Europeans and some Asians are working hard to discover the secrets of neurons and neurotransmitters in the brain, some Asians are searching for the means to unlock powers of the innermost mind.

Briefly, European culture has a single approach whereas in Asia there is a bilateral viewpoint involving this world and the other world. Hence, the Asians who have not been too brainwashed by European learning can really accept heaven, *Shorga*, *Nirvana* as well as *Fung Shui* and a host of spirits of an ethereal kind.

Perhaps the most serious assault of the west on the Asian mind has been the propagation of certain myths that have come to be accepted even by the Asian intellectual elites themselves. If one used the term castration then the implication is that the creative ability was lost. If one used the term dwarfisation or the development of "bonsai" minds (e.g. Japanese and Chinese dwarf tree culture) then the implication is that Asian intellectuals were inhibited in the development of their minds to their full potential.

In economics, there was the myth of the "lazy native" whose supply curve for labour was thought to bend backwards, so that if more wages were offered he tended to do less work because he had a certain absolute take-home sum in mind rather than a desire to maximise his income. This rationalization conveniently allowed the colonialists to pay low wages to the native workers. The literature of the social sciences and many short stories or novels written in this century abound of Asians in plantations and towns as lazy, dishonest, frugal characters who orbit among the centres of colonial society. The net impact of these tendencies has been to stunt the growth of the Asian mind. After countries in Southeast Asia and elsewhere in Asia have obtained their political independence, some countries have been able to escape their past burdens better than others and have been able to design appropriate and relevant models of IHL for the different situations in Asia.

There are two interesting exceptions to the above historical development - Japan and Thailand. In different ways and through different devices both countries have managed to reduce the force of the western impact during the period between the 16th and 20th centuries. It is suggested that this made them better able to face the 21st century. They have better capacity to absorb western technology without losing their essential Asian ethos. Japan began by closing itself to western. It is unnecessary in this paper to extol the technological and economic achievements of Japan today. It was a totally defeated and industrially decimated country in 1945 yet four decades later, it has become one of the leading economic powers in the world.

In this context, we need only to note certain aspects of this progress. Japanese universities and the minds of the Japanese academic, commercial as well as political elites are consciously Japanese and to that extent are Asian, in their world view. Whatever western universities may think of the Japanese higher education system, there is no doubt that it has produced the men and the innovations that have contributed towards the exceptional progress of the Japanese economy.

Within Southeast Asia on a more limited scale, the Thai example is interesting - that is, university education has been extended by an open university policy which contributes towards a system that puts Thailand ahead of other countries in Southeast Asia. Because Thailand was never under any colonial power, its intellectuals have been able to pursue higher learning in many language systems of Europe and America. Similarly the deep belief in Therevada Buddhism has contributed largely towards national unity, loyalty to the sovereign and a sense of purpose in life which could be envied not only by Asian countries but other parts of the globe.

To sum up the context in which the notion of an "Asian mind" is considered in relation to the needs to design an IHL, it is assumed that:

(a) Such designs are relevant to the situation currently prevailing in particular Asian regions.

(b) The designs are to be implemented in an evolving series of steps as new institutions are established rather than by radical changes within the existing IHL.

(c) The way to the achievement of the ultimate objectives may take several decades.

Perhaps the most significant contribution that our analysis has to offer is the proposition that more sophisticated designs for IHL in Asia are conceivable because of its relatively high cultural base at all levels of society as compared to other developing areas in the world.

Furthermore, the element of *adab* or courtesy and morality is natural to Asian scholarship. The notion of the *guru* should be restored to the design of a university instead of just reproducing models of IHL that have evolved in the West. This is not to say that either system is better. It is essentially a question of the different parts of the Asian region and take into full account the cultural condition of Asian society as it was four centuries ago and as it is now.

This requires us to view the period of the "interruption by the western colonial powers" as an interregnum. We should not try to graft elements of new designs on western models of IHL. Whatever success they may have shown in their original habitat western forms are best suited to their own.

At this point it is useful to clarify the four developing groups in the Asian region in so far as IHL are concerned:

1. Countries such as Afghanistan, Bangladesh, Burma, Cambodia, Laos, Nepal and Mongolia may be the least developed in the region. In the short term their needs for basic education and the development of primary and secondary education are more significant than that for IHL.

2. The large states with substantial population have their special needs. They include China, India and Pakistan. They have established large numbers of western-type institutions during the last half century. As they pull themselves up the ladder of economic development their needs will evolve on a different scale.

3. The ASEAN core consists of the "young tigers" led by Singapore to which we can add rapidly developing economies such as South Korea, Taiwan and Hong Kong and the ring of states that make up the ASEAN core including Indonesia, malaysia, the Philippines, and Thailand that have the greatest opportunity for growth both economically and academically.

4. At the apex of growth lies Japan. While it is the model for economic growth, its relevance for the design of IHL can only be really useful if we turn to the period when new IHL was being designed in the middle years of the Meiji Restoration. Particularly significant in this context is the traditional slogan *wakon yosai*, i.e., the adoption of western technology, ideas and systems but redesigning them according to the Japanese spirit.

In light of current historical trends, especially in the arena of so-called superpowers, a new game seems to emerge. If this materializes it will increase the prospects of peace in the long term and the rate of progress in the Asian region especially in the above core parts will be accelerated.

We digress briefly here to consider two points that are relevant to the basic design for institutions of higher learning in Asia.

Firstly, there is the concept of the intermediary in economic, cultural, and religious interactions. Secondly, there is the apparent smoothness in most cases, especially in trade and travel. There have been many instances where intermediate meeting places have emerged which allow travellers from either direction to wait for their opposite numbers to arrive and transact commercial deals as well as enjoy each others' cultures and ideas.

Travellers included scholars and missionaries as well as traders, navigators and diplomats. The existence of intermediate meeting places provided not only a venue for intellectual and social exchange, but also the necessary time for leisurely interaction so that experiences could be discussed and developed in-depth. Since most of the travellers were Asians, the potential for discovering ideas was great. There were traditions of tolerance and courtesy towards foreigners. The practice of exchanging gifts and a tradition of curiosity and interest in learning among rulers in China, India and Persia and even among the Mongols led to continuous dissemination of learning, especially higher learning including philosophies of life and death, systems of education, techniques of construction, water management or genetic engineering (e.g. horse breeding), etc.

In sum these historical traditions enabled a continuous stream of certain elements of higher learning to be disseminated throughout the region. The existence of stable and well-developed languages such as Sanskrit, Chinese and Malay not only preserved knowledge but facilitated its dissemination from one end of the region to the other. Today hundreds of thousands of young farmers' daughters who have never left their remote paddy or rubber farms have migrated to the urban areas, especially the free trade zones to work in technologically advanced factories producing semiconductors, computer parts, cameras, etc. Due to their limited education, very few of these girls would have the experience of using a microscope. Yet when they enter such employment they are quickly able to put their deft fingers on the wheels and levers that control the production of these electronic commodities. They find no difficulty in adapting to the daily routines of factory employment which include shift work, training, wearing special work clothes, or managing their regular cash incomes. Why can they enter the new world of modern technology so easily? This is because for generations their forebears have turned their fingers to weaving complex carpets or textiles or the production of processed foodstuffs or have live a life in close harmony with nature in the jungle, the sea and the monsoons.

Another aspect of this long tradition is shown by the number of persons of Indian or Pakistani origin who serve in universities and research institutions of the United States. The number of Filipinos who serve as nurses and medical technicians in the U.S. is another example. A more recent trend has been noticed in the development of the Philippines as a centre for the export of software to the U.S.

Where there was no such tradition as in the case of people who live in countries like Papua New Guinea or Central Africa or the indigenous people of the Amazon, then people are not readily able to get involved with the main stream of modern technology, less still to leap to its frontier.

Design of Institutions of Higher Learning

How should we consider the design of institutions of higher learning for the specific sub-regions of Asia? It should be noted that modern technology already allows participation in IHL across national boundaries. Apart from questions of rights and royalties for intellectual properties, knowledge can be shared without the need for duplication of hard copy records. It is no longer a novelty for scholars around the globe to interact by facsimile or video. Distance learning is already being applied in Thailand, Indonesia, India and Japan. Correspondence courses have been used throughout the region for more than half a century. Virtually every state in Asia has at least one university while several have hundreds of universities.

Apart from one or two exceptions, post-graduate education is not well developed. It has been convenient and economical to send brilliant graduates from Asian universities to study for their doctorates in the renowned universities of Europe and America. This has had at least two negative effects. Firstly, they have set their minds into the world views or problems and their possible solutions as they are conceived by their western professors. Secondly, when they return to the universities in their homeland, they possess reinforced viewpoints and approaches which may not always be relevant to the real needs of their respective countries.

There is a third effect which is particularly significant for India and the Philippines. This is the brain drain. The best scholars do not return to disseminate new knowledge. This can set in motion a vicious spiral where indigenous IHL in the region is not only drained of their best scholars, but their academic work tends to deteriorate thereby discouraging their respective governments from giving them adequate funds and other resources to pursue excellence.

In the region, existing IHL may consider reorienting themselves towards new directions. New IHL should be purposely designed so as to accelerate the progress of the people of the region towards greater material wealth and better states of mind in the twenty-first century.

To this end there are many possibilities that may be considered and discussed by those who are concerned with the planning of university development or of making decisions about university in the region.

1. IHL need to be more multi-disciplinary. The traditional barriers between subjects are being reinforced by increasing scholarly specialisation for administrators in higher learning. In reality, the problems of the modern world have not conveniently fitted themselves into the pigeon holes of university departments. Many problems involving complexity need to be studied from a cross-disciplinary approach. One way to induce this is for IHL to concentrate on developing the post-graduate level in Asia and not to encourage the growth of administrative departments, divisions or faculties. New modes have to be found to organize the management, finance, personnel, space, etc., of higher learning and research.

2. Teaching and learning should deliberately be oriented towards the expansion of scholars' minds. The skills of thinking should be specifically trained. This is necessary if for no other reason, to offset or neutralize the tendency of so much of Asian learning to be in the mode of rote learning.

3. The IHL must deliberately strive to build the characters of their scholars.

In the past, this is the point where scholarship involved the training of a person to become caring, courteous, and cultured. This is the development of *adab* in Islam. It is possible that in the 19th and 20th centuries the concept of a secularized democratic university according to the western model of IHL has encouraged IHL designers to abandon attempts to deal with this aspect of higher education. The higher educators of Asia should consciously face up to the issue of whether they are going to preserve their heritage of good manners in higher learning or to follow certain western models.

4. Without being chauvinistic or xenophobic, IHL in Asia needs to develop extracurricular activities that will sensitize Asian scholars in their own IHL to the cultural heritage of the region. This includes a better appreciation of the real patterns of cultural interaction that have swept over the region during the last two thousand years. In science and medicine it is stimulating for students who are only familiar with Ohm's law and Newton or Einstein to learn of Chinese science, Indian medicine or Islamic science.

5. While there is some justification for a substantial part of the masters level courses to be based on course work and case studies, at the doctorate level it is essential for scholars to have adequate opportunities to carry out first hand research. The problem of the choice of topics and the amounts of financial support are matters that national governments will determine so long as public universities derive the bulk of their budgets from public sources. Private universities motivated by profit may have inadequacies in this field. They could supplement their budgets by grants from charitable foundations or corporations that wish universities to help in the solution of particular problems.

It is absolutely essential that a majority of the staff and postgraduate students of IHL are involved in some form of research activities. Some criteria for adequacy of financing and other resources needs to be set up in the declarations of national education policy. Otherwise administrators and politicians tend to make decisions that are more likely to be for the short-term or for some personal benefit.

Some balance needs to be struck between pragmatic applied research which has to be carried out for the solution of immediate problems and the longer terms explorations at the frontiers of knowledge where discoveries and innovations are made and substantial benefits may be derived.

Some form of regional collaboration could make it possible for Asian researchers and scholars to concern themselves with fundamental issues in the discovery of new knowledge for the benefit of mankind as a whole. At present far too many institutions that carry out fundamental research are not located in the Asian region.

6. It may sound rather mundane to suggest that IHL should be involved in sports or cultural programmes. In the modern world it may be immediately apparent to the authorities as to why fighter planes or submarines or sports stadiums that attract international games should be budgeted for.

Even the cost of construction of golf courses which may exceed the cost of equipping a decent library in the IHL, may seen justifiable. It does not always seem so clear to those in power why there is an equally pressing need for the provision of sports facilities or cultural facilities, such as museums or theatres on university campuses. Culture and sports activities can be carried out as complimentary activities that will expand the minds of young scholars.

7. All the great religions and the systems of philosophy that originated in Asia have encouraged their believers to pursue their faith with perfection or with excellence. To do things to the best of one's ability is a universal value. However, in the modern IHL this is not always given the emphasis it deserves. Indeed, people frequently pay lip service to the cause of excellence. IHL in Asia should encourage their staff and students to strive continuously in the pursuit of excellence in all their respective fields of endeavour.

8. Throughout the region remuneration levels for employees in IHL need to be seriously reviewed. From a premier position in the days when the scholar Guru was highly respected by all levels of society in many countries in the region, the teacher today is rewarded at levels that compare unfavourably with incomes in both the national bureaucracy as well as the managerial community in the private sector. This has set in motion a downward spiral that has diverted the best and brightest of the younger individuals away from the academic sector. Truly Bernard Shaw's dictum has come to pass: "Those who can, do, and those who cannot, teach." In the new design for IHL in the 21st century, a special attempt should be made to reverse this trend.

9. Another trend that is in serious need of reversal is the increased politicisation of university affairs. This involves rectors, professors as well as students. The net effect is the dilution of the quality of scholarship. Academics find it easier to gain recognition and promotion by currying favor with political leaders and writing sycophantic articles in the media. This trend leads to distortions in the pattern of education as well as systems of selection and promotion that are not based on academic merit. The great scholars who belong to the Asian heritage, similar to many western counterparts, have stood up to kings and religious authorities in defense of their ideas and critiques. This tradition should be revived without turning the IHL into a hotbed of carping negative criticism that can be unnecessarily provocative to any government.

10. Although several states in Asia have taken advantage of the opportunities opened up by teaching through the development of distance learning many have yet to use this facility for the extension of IHL on a wider basis.

Access to IHL should be, in principle, available to all those who have the capacity to study at a postgraduate level. By the next century the hardware, may cost less than one-third of third of what it does today. However, in order to take advantage of an era of cheap hardware Asian nations need to begin as soon as possible to design the software for distance higher learning (DHL). Besides the need to design practical systems for administering and managing DHL there is an immediate need to prepare new teaching materials that can be taught and learned in ways that are different from the usual campus modes that prevail. This requires considerable research and experimentation to find the most effective teaching methodologies as well as curricula that can be followed by distance learner at different pace from the traditional IHL scholar. The ultimate test will be the quality of the graduates. Will they be employable? Will they be able to continuously develop their minds? The DHL system should not be allowed to become a diploma factory that turns out large numbers of graduates who expect society to provide them with jobs just because they have graduation certificates. There is an implication here that DHL should be practically oriented. It should try to meet the needs of the developing nations in Asia for larger numbers of professional people in the fields of accounting, engineering, medical technology, etc. It should be involved with the continuous upgrading of teachers in schools and colleges as well as IHL so that the DHL system itself can be an integral part of the pursuit of excellence in learning.

11. The relationship between IHL in the Asian region and IHL in other regions should also be commented on. These other regions can be divided into two sectors: the so-called western IHL mainly found in Europe and America, and the IHL in the rest of the developing countries outside Asia. There is a need to establish certain protocols which can serve as guidelines for the performance of these relationships:

    i) There should be mutual respect without condescension or patronisation.

    ii) There should be mutual participation that is extended both qualitatively and quantitatively.

    iii) Mendicancy and dependency should be avoided.

    iv) Academic dissemination should avoid neocolonialist tendencies.

    v) Inter-regional cooperation should take priority over extra-regional cooperation wherever possible.

    vi) International agencies such as UNU and UNESCO should be able to play an important role in moderating relationships between IHL within and among regions.

Developing countries in Africa and the Pacific have their own cultural heritage or colonial history. One major difference between the new African nations and the Asian states is the role of a national language in the IHL. This may be a rather sensitive point, but philosophy, mathematics and medicine for example, were the subjects of sophisticated inquiry and documentation in Persian or Chinese many centuries ago. Philosophy was taught in Malay 400 years ago. This is not the case for the nation states of Africa or of those among the Pacific Islands. Therefore, special designs different from the Asian models have to be prepared for the unique needs of these countries. Nevertheless, the IHL in the Asian region have a wide range of experiences even within this century which could be cumulated by IHL in the non-Asian developing countries. Countries like India or China have experimented with a great range of educational methodologies and it would save a lot of resources if some non-Asian countries took advantage of knowledge about their successes and failures.

Before passing on to the final point it may be necessary to elaborate the issue regarding neocolonialism in academic dissemination referred to in point 11 above.

Most of the leading scholarly journals are published in the Euro-American region. In North America a prevalent attitude regarding the evaluation of academic performance is summed up in the slogan "Publish or perish". While the rights of scholars and publishers in this region to publish freely should be upheld there are certain effects arising from this trend that do not augur well for scholars in Asia.

Nowadays many of these scientific journals require payment in dollars or hard currency for the publication of academic articles. Frequently there are queues for acceptance and publication of papers. Occasionally non-Asian journals do not seem to appreciate the significance of research reports that deal with topics that are more relevant to the social or physical features of certain parts of Asia. Effectively Asian scholars have greater difficulty in getting their manuscripts published in western journals. The same applies to the publication and marketing of books on a global basis. It is not suggested that there is positive discrimination against Asian scholars by western academic publishers. However, they way the system works, the net result is that it is more difficult for Asian scholars to get their articles published in the better western academic journals. Indeed, for scholars in the less favored IHL in many countries in Asia the opportunity even to read these journals is less because the university cannot afford to subscribe to them. Because of continuously rising costs of publication in the West such opportunities are continuously reduced.

Therefore, within the Asian region some centralized system of publication should be developed. This is an area where a most significant contribution could be made by the UNU in cooperation with UNESCO. Furthermore, modern information technology should make it possible for journals to be published and circulated at considerably cheaper rates. Exchange agreements could allow Asian journals to reproduce articles from western journals and *vice-versa*. Surely the prime objective is the extension of scholarship and not profit gains.

12. In the great Asian tradition which preceded by several centuries the concepts learned by the Europeans during the crusades, IHL was often an integral part of a complex of facilities that made available food and accommodation together with libraries, cubicles for individual study and meditation, in order to accommodate great teachers, travelling scholars, retired scholars and other personages. These were often endowed by charitable donations so as to cover their costs. Such facilities provided important benefits: The creative life of older scholars was extended; the younger upcoming scholars had opportunities to interact with their seniors; and the community of the IHL had a better balance of young, middle-aged and senior personalities.

The design of the new type of IHL in the Asian region should attempt to revive this tradition. Initially each country would need to establish only one such institution.

Special arrangements could be made to receive foreign visitors. Regionally-oriented organisations could provide grants for scholars of all ages to travel to IHL outside their respective countries. These "retreats" could play a significant role in realizing the ideal of achieving diversity within unity and unity within multiplicity.

Conclusion

The idea of having a different type of design for the development of IHL in Asia in the 21st century has been sketched here. There is absolutely no intention of emphasizing the superiority of Asian minds over any other minds. The point is that the Asian mind has progressed to a certain state, direction or level that is different from other non-Asian minds.

Western scholars may like to refer to the history of the idea of the university. They will find that its genesis lies outside the scope of the great universities that currently dominate the global academic scene. Humility seems to have become a rather obsolete tradition.

HIGHER EDUCATION IN AFRICA

T. L. Maliyamkono

Introductory Note

This chapter addresses higher education issues in three sub-themes: namely, the improvement of the quality of higher education, orienting higher education to the larger society, and developing regional and international cooperation.

The paper draws illustrations mainly from Eastern and Southern Africa, although most of the major developments can be generalized.

The structure of this paper does not allow the assessment of other university burning issues, such as gender issues and minimum funding for universities, expected tertiary enrollments and preparation for the "baby boom" in universities by the end of this century.

1. The Role of Higher Education in Development as a Base for the University's Specific Tasks for the Development of Science and Technology

In Africa centres of higher education seem to be playing four main roles:

(i) The education of high level manpower through teaching and learning;

(ii) The development and application of new knowledge through research for the benefit of society;

(iii) The provision of public service to society: through consultancies and other community-oriented activities, and

(iv) Higher education campuses as centres of political force.

The specific social context of each country, however, determines the ways in which these goals may be fulfilled.

(a) The Teaching Function of the Centres of Higher Learning

Students in higher centres of education are assumed to be of a higher intellectual calibre and receive a richer educational experience than any other students in the country. In the process, they also consume, on a per capita basis, the largest amount of resources. The main role of these centres is the production of highly trained and educated specialists: teachers, engineers, agriculturists, accountants, business experts, scientists of all kinds, medical doctors, pharmacists, veterinary doctors, lawyers, political scientists, economists, public administrators, etc. Indeed, it is one of the roles of the university to provide society with all kinds of high-level manpower. In general, people who pass through the portals of universities are destined to be leaders of society in one capacity or another. Although in practice university graduates may work under, and be responsible to other graduates or undergraduates, the general public, nevertheless, looks up to them for leadership and guidance in many spheres of life.

A major component of this educational process is to stimulate the student's capacity to be critical in the face of the trials of life. A university graduate who is merely endowed with certain practical skills and knowledge, but lacks the critical ability to seek the truth and follow it, regardless of the consequences, is ultimately useless to the society which he purports to serve.

The question of whether the African centres of higher learning should be an instrument of development, need not be asked. There is no way in which the African university or any other university for that matter, can shun its responsibilities regarding the development efforts of the nation it serves. Whereas universities in the metropolitan world are richer in resources and can afford to pursue a broader range of basic and applied studies, the African university has to justify the large national expenditure it requires, in terms of direct contribution to development. Thus, the African university must be responsive to the dictates of its nation's development needs. It must educate useful leaders and participants in the development effort.

Universities have to continue to strive for higher degrees of excellence in their product, despite the difficulties they may face in budget cutbacks, foreign exchange problems and shortages of equipment and facilities. The qualifications and calibre of teaching staff in the universities have to continue improving. Efforts have to be exerted to make available free of charge, course textbooks, supplementary readers and relevant research and reports, in order to expand horizons and extend fields of discussion. Curricula have to be geared to the development and problem-solving needs of the region. It is vital to development that the regional training capacity grows and intellectual dependency on industrialized countries be minimized.

Universities in Africa have made tremendous efforts in terms of graduate output. UNESCO has recorded great increases in both student and staff numbers, between the '70s and 90's, yet Sub-Saharan Africa remains far behind in terms of higher-education student per 100,000 persons as the table illustrates.

Table 1. Numbers of Students and Staff - 1970 and 1990 and Student Population per 100,000 Inhabitants

A. Number	1970	1990	
Students	79,628	542,700	
Staff	47,000	137,000	
B. No. of Students per 100,000 inhabitants	1980	1989	% change
Sub-Saharan Africa	104	162	56
Asia	535	645	23
Latin America	1352	1659	21
Arab States	901	1093	21

Source: UNESCO, Statistical Yearbook 1991

(b) The Research Function of the Centre for Higher Learning

Not only do universities pass knowledge from people who have it to those who do not have it; they also generate new knowledge and develop new ways in which knowledge can be used for the benefit of mankind. The ability to innovate is one of the most important characteristics which distinguishes man from beasts. Universities are entrusted with the responsibility of systematic innovation, that is, the production and analysis of knowledge to enhance the quality of life of human beings.

All the members of the academic staff of universities are expected to follow, be involved or undertake research. In many of the universities in the East and South African Universities Research Programmes (ESAURP) region, a major criterion for the promotion of staff to senior grades is the research output of the individual as demonstrated by publications in reputable and recognized journals. Most universities in the ESAURP region, for instance, demand that for promotion to a senior lectureship, a staff member must perform adequately in the three areas of teaching, research and service to the university, and must demonstrate outstanding ability in at least one of these areas. However, for promotions to the grade of associate professor or professor, the criterion is more specific in that the staff member must establish a sustained international reputation in research and publication. The degree of emphasis laid on research, as a criterion for promotion, may vary from one university to another. Nevertheless, research remains a responsibility which all centres of higher learning cherish.

As in the case of its teaching function, the university faces a dilemma with regard to what sort of research it should encourage its staff to pursue. If the university attempts to enforce rigid control over staff research, it threatens academic freedom. Moreover, excellence may not be encouraged, if the skills and interests of current staff are not matched to the research that is undertaken. On the other hand, a poor country can only afford to support a limited amount of research, and yet there are vast areas of immediate concern to the society which remain unexplored: from the field of tropical diseases to the oral history of ethnic groups, from rural agriculture to the creation of employment in the textile industry, from the improvement of local brick making to rural and regional planning. These areas provide scope for research which can reach academic excellence, while still being immediately relevant to the development needs of society.

A middle patch, therefore, is for universities to publish statements of research priorities, specifying broad areas of concern rather than narrow research topics, and perhaps to tie allocation of local research funds to these priorities.

Many universities in the ESAURP region set aside some funds in their annual budgets for research, an amount very small in comparison to the amount spent on teaching. On the other hand, many donor agencies and local and international governmental and nongovernmental bodies are actively engaged in supporting research done by the staff of African universities. Finances are not the only barrier to research production either. The lack of inter-university cooperation is also a problem. There is far more collaborative research between universities in the South and those in the developed countries of the North than there is on a South-South basis. Clearly there is a need to build up research capacity in the universities in the South. One way of doing this is by introducing as many doctoral and post-graduate programmes as possible. The current widespread practice of sending graduate students to universities in the North inculcates some research skills, but often fails to enrich the research capacity of the South.

Although the idea of the development of centres of excellence is not new, there is no doubt that such centres would enable African universities to share their scarce resources in the development of local research capacity. The universities are bedeviled by constraints in terms of financial provisions, foreign currency for the purchase of expensive equipment from overseas and lack of technical support manpower. The creation of more centres of excellence similar to the International Centre for Insect Physiology and Entomology (ICIPE) in Nairobi, Kenya, the Tropical Disease Centre in Ndola, Zambia, the Regional Health Training Centre at the University of Zimbabwe, the East African School of Librarianship at Makerere and the East African Statistical Training Centre based at Dar es Salaam (all of which are run by a group of countries) would not only provide opportunities for African scholars to share ideas on the problems of the region with others of their discipline, but would also enable them to share the use of whatever equipment is available in the region. Now ESAURP is taking once more, stock of research being done in 15 of the African centres of higher learning. The publication should arrange dialogue among researchers.

(c) The Public Service Function of Centres of Higher Learning

The role of the African university as a service institution derives from the fact that it normally encompasses the largest single collection of highly specialized people in a country. This is certainly true of single-university countries, which predominate in the ESAURP region. The academic and senior administrative staff of the universities are not only experts in their fields of specialisation but are also best placed to know how the knowledge accumulated in their field of study can best be disseminated to those who need it. Thus, the universities constitute reservoirs of expertise which must be tapped by governments and parastatal organisations, as well as by the private sector. The African university, being a developmental institution, must be involved in providing consultancy services for the larger society.

In order for a university to provide credible services to society, however, its own house must first be set right. A certain amount of conflict is inevitable between interest groups, and may even be beneficial in terms of keeping the universities up to standard, but a university which is torn apart by strife within itself cannot render useful service to the society within which it operates. The university of necessity brings together men and women from different walks of life; it must train its own personnel to resolve the predicaments and contradictions that are inherent in the nature of the institution. At its best, the university can demonstrate to society the melding of its multi-racial, multi-tribal, multi-cultural and religiously heterogeneous constituencies into a functional system that can deliver quality products in teaching, research and public service.

Thus, universities do not serve society only when they accept requests to undertake consultancy work for a given body outside the university, or when they initiate practical development-oriented projects within the community. Many would say that they also provide indirect service by setting a good example of cooperation to other bodies within the country. Fortunately, many Acts of Parliament or statutory instruments setting up a university provide for the participation of senior government officers: such as permanent secretaries in the governing body of the university. At first sight, such provisions might appear to constitute interference on the part of government in the university's affairs and a threat to the academic freedom and autonomy of the university. In fact, however, it also provides a forum for the university to fulfill its service function to society - the function of constructive criticism discussed above as a fourth role of centres of higher education. If the university's own procedures are exemplary, they are most likely to 'rub off' on to the permanent secretaries who sit on its councils and committees, and this in turn may gently persuade those in the corridors of power to live by the precepts the university is attempting to teach.

Service to society can also mean direct involvement by university personnel in practical tasks. For example, some centres of learning make provision for their senior staff to take periodic leaves of absence to work within the government or government entities. There are also numerous instances in which government ministries, parastatal bodies and companies in the private sector face problems which need immediate solutions that university specialists can provide via short consultancies. In the past, unfortunately, the tendency has been to look for consultants from the industrialized world. Now more attention is directed to the economic advantages that can be derived from using local staff equipped to understand and appreciate the exigencies of their societies.

A third way in which universities can render service to the public is by setting up applied research centres which are not necessarily involved in the direct teaching of students. The Institute of Mining Research, the Centre for Applied Social Sciences and the University Lake Kariba Research Station at the University of Zimbabwe, the Kafue Basin Research Project in Zambia, the Institute of Marine Sciences at the University of Malawi are illustrative examples. The Lake Kariba Research Station is not an independent research centre, but it provides research services for the university departments and the community (see Appendix).

The University of Dar es Salaam also has the Institute of Resource Assessment, the Economic Research Bureau and the Institute of Development Studies. The University of Botswana has the National Institute of Development and Documentation and the Institute of Adult Education. The University of Nairobi has Institutes of Computer Science, Development Studies and African Studies. The University of Khartoum has the Institute of Environmental Studies and Animal Production. More examples are given in the Appendix.

The trend toward the creation of research centres is growing. There are plans for a centre for microcomputer applications at the University of Zimbabwe. Moi University expects to establish an institute of applied science and technology. Most of the centres are semi-autonomous institutes: either incorporated into the university or affiliated to it. They have their own budgets and boards, and are often sponsored by the ministry or government department most closely associated with the work of the centre.

(d) Centres of Higher Learning as a Political Force

It appears there is indeed a hidden agenda for centres of higher learning, especially the universities. History has demonstrated that some universities are increasing becoming centres for discussing political issues outside classrooms. Debates and opinions about some issues have caused conflicts between the university and the state. In some instances the conflict has resulted into physical crushes, as was the case at the University of Nairobi in 1965, over the Southern Rhodesia unilateral declaration of independence by Smith, at the University of Dar es Salaam in 1967 by students rejecting compulsory national service and in 1979 by students rejecting salary increases to members of parliament at a time of economic difficulties. More recently university campuses have been at loggerheads with the State over multi-partisanship in Algeria, Nigeria, Kenya, Ghana, Kinshasa, Ivory Coast and many others. In Ethiopia both revolutions after Haile Selaisse were partly engineered by the university.

The role of higher education and specifically universities, may be summarized thus: (i) the teaching and learning role, which basically commands known knowledge and provides no room for new experiences, (ii) the research function which generates knowledge (and is a base for graduate students programme) and (iii) services which provide opportunities to try out new experiences and make inventions, modifications and developed technology. The consultancy and advisory role seems to be restricted to the staff and the role which has been played to maintain a working relationship between the university and state instruments and occasionally as a source of university community incomes. The fourth role emerges from students on their own by having to bear their opinions on issues, pertaining to the university, such as student allowance and meals and to issues of a larger society, such as human rights.

1.2. Major Problems Hampering the African Higher Education from Taking a Leading Role

A number of problems hamper the African higher education to play its due role in providing leadership towards the development of the whole system of education, in bringing innovation to the system and introducing new techniques, such as distance, education and some measures to bring about efficiency in the delivery systems of education in Africa. There are two sets of problems: fundamental or ideological and operational problems.

(a) Urch (1992)[1] has identified five operational problems facing education in Africa, in general. These problems are: (1) the African heritage, what to retain, modify or replace; (2) the colonial heritage; (3) the language problem in the schools; (4) the dichotomy between education for self-reliance versus education for technological and industrial advancement; and

(5) education for national unity.

(b) There are fundamental problems. Africa has no leadership in almost all spheres of life. The characteristics are basically backwardness and perpetuation of colonial mentality that works against any original indigenous idea - thus making innovation of the system almost impossible. Black Africa would be led by Nigeria because of its economic and population might. Out of 95 African universities in Africa, Nigeria accounts for nearly one-third - 30 universities. Now Nigeria is branded with illicit drugs, smuggling and squandering public money. Groups render the country incapable of taking any leadership role. Small countries that have managed to remain peaceful and maintained stability and whose leaders may be, by and large, credit worthy are too poor even to succeed in their own programme of renovations. Nyerere's programme of education for self-reliance, for example, has been frustrated by lack of money and proper managerial capability; technical assistance is unable to help.

Because of lack of leadership every country seems to have areas of concentration not necessarily similar to its neighbouring territory: though the socio-economic and cultural background of the countries may really be similar. The different paths pursued following the philosophies, which were advocated by political independence in Black Africa, have presented far-reaching constraints. First the philosophies concentrated on moving away from colonial thinking, as noted by Urch (1992)[2]:

> "The basic theme of their books tended to be on the need to move away from the colonial education pattern toward a system based on the uniqueness of African society. Among the first most prominent authors were Kwame Nkrumah, the President of Ghana, who wrote 'Africa Must Unite' (Nkrumah, 1963) and Julius K. Nyerere, the visionary leader of Tanzania, who wrote 'Freedom and Socialism'

(Nyerere, 1968). Two other prominent authors of this time were Kofi A. Busia, one time Prime Minister of Ghana, who wrote 'Purposeful Education for Africa'(Busia, 1964), and Abdou Moumini's 'Education in Africa' (Moumini, 1968). In some ways they were the pioneers for a growing number of African researchers in the 1970's and '80's."

A decade later writers were concentrating on specific issues such as curriculum development, universal primary education and the training of science teachers. International organisation such as UNESCO, followed suit. Indeed they may have been the very organisation to pioneer the field. Another decade later there was a marked shift from European and North American to African researchers and writers. We shall give some examples country by country, and region by region, as summarized by Urch (1992)[3]

West Africa

Since independence came to the countries of West Africa, the most impressive educational feature has been the rapid expansion. During the past thirty years the number of students enrolled at all levels has more than quadrupled. Country after country has introduced some form of universal or compulsory primary education, built more secondary schools, and opened at least one national university. This massive expansion has been made possible through the infusion of large sums of money by new governments who saw the quick expansion of education as a political necessity.

Benin

Formerly referred to as Dahomey when it was a French colony: This country of five million people was one of the areas of the west coast that came into contact with Europeans quite early. One result was that prior to independence in 1960 close to half the school children were enrolled in Roman Catholic mission schools. French-modelled secondary education was available to a few. The relatively large number of professionals and intellectuals caused the colony to be called Africa's Latin Quarter.

Burkina Faso

The lack of income-generating exports makes it difficult for the government to devote large sums of money to formal education. Nevertheless, efforts have been made to extend educational opportunity to rural areas and provide vocational education related to agricultural development. Much of the effort involves literacy campaigns. The country has one of the world's highest illiteracy rate.

Cote D'Ivoire

Sometime after independence was obtained from the French, the nation introduced a major educational reform that emphasized civic responsibility and basic literacy through an expanded primary school system. The reform also introduced scientific and technical education into the secondary and higher education effort in order to produce a cadre of well qualified personnel. Again, in 1976, the government introduced a new reform which placed education in a pivotal role in the country's five-year development plan. The result has been a dramatic expansion in the number of schools and students during the past ten years. The educational expansion and a concomitant infrastructure to support it has been made possible to sustain economic growth as a result of a close Euro-African partnership. While the economy has stagnated in the past few years, the government's financial efforts to promote expansion of education is among the most impressive in the continent.

Ghana

During the 1960's Ghana's expanding educational system produced graduates who were highly regarded, and the country became an important recruiting arena for many countries and international organisations seeking civil servants and educators.

Liberia

Liberia declared itself independent in 1847 and for the next 100 years the formal education that did exist was primarily in the hands of Christian missionaries. In the 1950s the government began to take control and, assisted by foreign aid, enrolment at all levels in the schools grew quickly. By the 1980s over 75 per cent of the eligible school children were enrolled in primary schools and the secondary schools enrolled 23 per cent of the relevant age cohort.

Nigeria

The nation is often seen as the most dominant and complex in West Africa, if not in all of Africa. It is also one of the richest. With a population of over 120 million it is the largest on the continent; and as an oil-exporting nation in the 1980s its economic potential has been enhanced.

The complexity evolves from the more than 350 language groups within its boundaries and a federal government that shares power and money with state governments. The rivalries between federal and state government officials is matched by the rivals' influence. The continuous quest for more schooling by its citizens often has permitted education to move beyond the divisive interests of political leaders.

Central Africa

Added to this is the coastal country of Cameroon and two small but heavily populated countries in the eastern section, Burundi and Rwanda. It is an enormous territory that stretches from the equatorial rain forests of Zaire to the desert-like conditions in Chad.

Cameroon

The nation today is officially bilingual - French and English - but with 80 per cent of the population living in the French-speaking sector, the language dominates in the administration of the country and in schools. As an oil-exporting nation, Cameroon has the necessary financial resources to undertake an ambitious plan of educational expansion. However, the rapid growth of educational opportunity has occurred primarily through mission schools that dominate primary and teacher education.

Chad

For the past two decades the country has been engaged in a civil war that has virtually closed the school system in the north and left small funds available in the southern part.

People's Republic of the Congo

The political situation has affected education. In 1965 all schools were nationalized, and in 1980 a major reform established "people's schools". The main purpose of these schools is to develop a close association between schooling and productive work. The direction for this association is spelled out in the nation's 1982-86 five-year plan. Yet, in spite of these reforms the overall school system maintains a strong French character.

East Africa

Current educational patterns in East Africa have been greatly affected by three major factors, two of which occurred during the colonial period. The first was the domination by Great Britain during the colonial era. The second was European settlement and "hands-on" administration during the same period, and thirdly, the divergent political and economic paths taken after independence.

Ethiopia

From the fourth century the Christian Ethiopian Orthodox Church dominated the country culturally and educationally. The leaders of the church were treated as privileged elites who were not educators but wield much political power. Much later the Muslims and Ethiopian Jews, both minority groups, also provided religious oriented schools.

Clearly this nation of over 40 million people, 90 per cent of whom lived in the rural areas, was on a new road toward educational development. Unfortunately, sustaining that road was difficult in the '80's primarily because of war and drought conditions. ɪne '90's brought a new government and orientation. It is difficult to foresee what the future holds.

Kenya

Kenya is often used as an example of an African nation that has not stood still since independence. Blending its colonial past with an African perspective, the government has attempted to modernize its economy and raise the standard of living of its people. This has been done by advocating the entrepreneurship, promoting the development of tourism and industry to implement its agricultural development and encouraging foreign investment.

Unfortunately, much of its economic progress has been blunted by the highest population growth rate in the world. This demographic trend has serious implications for education. In spite of a continuous increase in school enrollments at all levels, expansion has not been able to keep pace with demand. Although the government has allocated more money to education than any other social service, the ability to provide educational opportunity for a greater percentage of the youth is in jeopardy.

Large-scale expansion of education at all levels is creating a shortage of qualified teachers, as well as school buildings and supplies. Still Kenya's large investment in education is helping to increase the productivity of its work force and for a small number of educated elite a substantially higher standard of living. Whether the investment will continue to pay in the future could depend, in part, on the nation's population growth rate. It has been estimated that over 57 per cent of Kenyan jobs will be in the informal sector by the year 2000.

The Sudan

This former British colony is the largest country in size on the African continent. It often has been described as the nation that bridges Arab and Black Africa. In the north desert-like land, and Arabic language, the Islamic religion provide a unifying influence; while in the south there is a plethora of ethnic languages and customs. Altogether there are over 500 identifiable clans in the Sudan divided into over 50 ethnic groups. The diversity within the country and between the north and south have major implications for education. Those who successfully pass the intermediate examination move on to a 3-year academic secondary school, or a 4-year technical school. The ladder is topped by universities and higher technical institutes. Over half the students enrolled in higher education are students at the University of Cairo, and the Khartoum branch, which basically offers an Egyptian-style education.

Tanzania

Primary education was to be terminal with only 4 out of every 100 gaining admission to secondary schools: and only 1 out of every 100, who began primary school, gain admission to higher education.

A recent National Commission's report projects that not less than 15 per cent of children completing primary education enter government secondary schools by the year 2000. The same report calls for a clearly defined government action plan to promote scientific and technological education. Higher education is to expand in order to satisfy high-level manpower needs. Tanzania sends only 6,000 compared to about 30,000 sent by Kenya (with virtually the same population) to universities.

Uganda

When this nation in the heart of Africa received its independence from Great Britain in 1962, the future looked bright. Fertile land had produced an agrarian-based economy where only 30 per cent of the rural inhabitants were engaged in subsistence agriculture. In education the country was further developed than any of its neighbours with Makerere, the only university college in Eastern Africa, sitting on top of the pyramid, and the infrastructure of a colonial system beneath it. Now Makerere University is perhaps the most devastated university in Africa due to internal political problems and the Amin era.

Southern Africa

The Portuguese colonies of Angola and Mozambique gained independence in 1975, and then only after a long armed struggle and a political coup in Portugal. Zimbabwe did not become independent until 1980 and, once again, only after a long and bloody war of liberation. The latest nation to gain its independence in the area is Namibia, which finally saw its own flag raised in 1990.

Angola

Angola's wealth in mineral and oil deposits gives it an economic potential not shared by many countries on the continent. The strong economic base bodes well for the future development of education. However, the new nation must begin its educational development from the ground level. With a population of over seven million people most government funds went toward the education of the 400,000 European population and the few "assimilados" living in urban areas.

There is a two-year pre-university programme and a four 4-year programmes that specialize in supplying the nation's technical needs to support national development. Teacher training is also one of the programmes. Vocational training of 3 years' duration begins after 6 years of primary education. At the top of the educational ladder is the newly renamed University of Agostino Neto. Many of the former Portuguese instructors were replaced, after independence, by Soviet and Eastern European professors as well as a few from Brazil.

Botswana

This was one of three countries in Southern Africa that was declared a British Protectorate when the Republic of South Africa gained its independence from Great Britain. The Kalahari Desert makes up 80 per cent of the land surface in this large country. One consequence is that approximately 80 per cent of the 1.2 million people live near the Limpopo River. Since independence in 1966, a diamond boom has brought unprecedented economic prosperity.

The educational system is presently in transition from a 7-3-2 structure to a 6-3-3 one. However, much of the transition has not yet taken place. Since 1986, junior secondary schools either have been 2 or 3 years in duration depending on subject matter orientation. The University of Botswana tops the educational ladder. Admission to the four faculties is through the Cambridge Overseas School Certificate examination. Many university students pursue studies at other African universities or study overseas.

Malawi

The lack of economic opportunity for its population of seven million has caused large numbers of young men to seek employment outside its borders. The young men recognize that employment opportunities are linked to the quality of education they bring with them and as a consequence, seek and value educational opportunity.

Mozambique

The little education advancement available was operated by Catholic missionaries. Since 1983 the national system includes a 7-year primary cycle divided into the first 5 years and followed by 2 more. Secondary education consists of an additional 7 years. Complementary vocational and teacher training is being developed alongside academic-oriented schools. At the top of the ladder is the Eduardo Mondlane University, named after the national hero.

Zambia

Zambia is often cited as a nation that relied too much and too long on a one-product economy. That product is copper which produces over 80 per cent of the nation's foreign exchange earnings. When its value dropped in the world market in the later 1970's the nation's economy suffered and it continues to suffer. The problem is compounded by movement into the urban areas where 55 per cent of the population now resides. This drift has deterred agricultural development, deprived rural areas of leadership, and strained the urban infrastructure and social services. The University of Zambia caps the formal system. It has three campuses and consists of eight schools and a centre for continuing education.

Zimbabwe

It inherited an educational system that had been organized along racial lines with separate schools for separate races, and where provisions for the education of Africans was limited by design and finances. When independence came, the new government announced its intention to reconstruct the nation according to the tenets of "scientific socialism". Education was to be an effective vehicle to aid in this transformation. The government's share of that expansion is managed by a centralized Ministry of Education. Through its four divisions, the Ministry manages the system and controls the curriculum process. However, only 20 per cent of the nation's schools are government-owned.

In an attempt to translate policy into practice the government developed experimental socialist schools called Zimbabwe Foundation for Education and Production. They are designed to engage students in productive agricultural activities. The University of Zimbabwe is the only degree-conferring institution of higher education in the country. It offers degree and post-degree courses through six faculties that include the arts, education, engineering, medicine, science and social studies. Another university is now being built in Bulawayo.

South Africa

The authors of "apartheid" argued that the separation of the races would allow each society to develop its own independently. Ten African homelands or Bantustans were formed. Each was to have its own government, public services, schools and universities. Thirteen per cent of the land, much of it not arable, was given to the African homelands, while the other 87 per cent was reserved for the white minority. By 1990 three of the homelands were declared independent. In reality all of the African homelands became a series of independent satellites under the strict control of the minority government. Most of South Africa's wealth to education goes to whites who are minority in numbers, but economically and politically mighty.

The individual country's historical, circumstantial and philosophical expediency has worked against a strong unified system of education relevant to Africa.

1.3 The University and Innovations in the Education System

Higher education in Africa has had little, if any, impact on taking a leading role in the development of the whole education system, in the use of new technologies to advance education, in introducing new approaches such as distance learning, in designing methods intended to measure efficiency and in the whole planning and management of institutions, where everybody - students, staff and users - are involved.

Several reasons may be attributed to the failure of the universities in addressing themselves to these issues. First, is the age of the African university, which is young compared to universities elsewhere. Second is the uneven division of university functions. The teaching and learning function take up over 90 per cent of university activities in Africa - not only judging from fund allocation - (i.e. only about 5 per cent of their recurrent cost goes to research) but also judging from the number of faculties engaged in the teaching function. Majority of the academic staff are expected to devote their time to teaching. Third, the economic realities. Poor earnings, unequipped laboratories, workshops, clinics and staff offices simply do not encourage concentration and good morale that will stimulate new ideas. University staff, be they academic or administrative, are busy spending their spare time and some official time on activities outside their own fields in order to earn extra incomes. In some countries more than one-third of the official wages and salaries from the secondary activities (Maliyamkono and Bagachwa 1990)[4]. A fourth reason causing failure for universities to contribute to education innovation in society is this: institutes training certain professionals could contribute more towards educational development if they work closely with universities to promote sensible changes within the educational system. However, the institutions supposed to bring about changes are poorly financed, especially in the period of economic breakdown. The only expenditure that counts is salaries. Additionally, institutes associated with universities which are considered the ivory tower are not down-to-earth and practical.

Above all, institutions of higher learning do not have the political will to bring about major innovations in their societies. They can only influence through their functions listed above. University staff now sits on government and parastatal boards and increasingly senior academic staff members are taking up senior public appointments and thus are accorded opportunities to inculcate their ideas that might bring about innovations.

Any other approach faces resistance from the state. In a number of universities in Africa, some able Vice-Chancellors have been removed because they dared voice their constructive criticism to the state and tolerated difference of opinion in the campuses. It is only in less sensitive societies like Tanzania where even presidential orders to remove some members of academic staff, because of differing opinions, have been successfully challenged.

1.4 University Financing and the Diversification of Sources of Financing

Traditionally, universities and other centres of higher learning are state recurrent cost-funded. Hardly any university has been built by public funds. Most buildings - residence halls, classrooms and theatres, laboratories and libraries as well as staff houses - have been donor-funded and exceptions from this trend are rare; mainly the oil- and mineral-exporting countries.

A study by ESAURP (1987) revealed that government grants and subventions provided by far the largest share of the revenue - ranging from a high 94 per cent of the total revenue in Mauritius, to a low 58 per cent for Botswana. Other sources include fees and university consultancy services, and indirect money going to universities through external funded research and link programmes. However, in general, money funneled to universities has fallen. Macroeconomic imbalances of the late 1970s, the subsequent structural adjustment programmes, high population growth rates (creating large numbers of higher education population) and keen sectoral competition for public resources have impaired the government's ability to support higher education. At present, some recurrent expenditures are met from programmes (country training and technical assistance) funded by the donor community.

The University of Dar es Salaam presents a good example: Germany supports engineering, the United Kingdom supports Central Administration, Switzerland supports the Estates Department, Norway assists the Chemistry Department and Sweden helps the Economic Research Bureau (ERB) and the Institute of Resource Assessment (IRA) gets support from SIDA and DANIDA. Unfortunately, donor funding seems to be short-lived and tends to interfere with priority and development planning.

In any case government (public) funding and donor support do not cover the higher education costs which could be categorized under three major items, namely, the cost of instruction (which includes faculty salaries, buildings, support staff, equipment, books, etc.); the cost of student living expenses (including room, board, transport, etc.); and student foregone earnings, as a result of student withdrawal from the work force in order to study at a university. The foregone work represents a social cost. Also foregone activities deprive the student of private incomes. And in some universities noted for regular university closures, this cost represents a significant figure.

Surprisingly, universities have not yet been successful in exploring and tapping potential sources of revenue, in spite of the fact that competition for resources from the national budgets is likely to become even more stiff than in the past. Maliyamkono (1988)[5] has identified possible other sources:

> "The funding of universities and other institutions of higher education could be stepped up by the way of fees and tuition from students. Transport cost, clothing and bedding and book and living allowance are some of the costly items which may be contributed by the beneficiary."

Besides students' contribution, part of the expenditures of the institutions of higher education could be met by prospective employers of graduates, but only if they have the opportunity to be involved in influencing, for instance, the course content. The introduction of Self-reliance Units (SRUs) within the institutions of higher education in Africa, could offer a potential source of revenue to supplement the already deteriorating government grants. These units could be engaged in a range of activities on campuses including maintenance of equipment, repair of infrastructure and general rehabilitation of the physical plant. Improvement and strengthening of consultancy undertakings, in institutions of higher education, could provide potential conditions for academic staff retention. This is what the Bureau for Industrial Cooperation (BICO) has successfully done.

In a study conducted at both public and private secondary schools, Maliyamkono (1982)[6]found that school economic activities contributed less than 1 per cent of the recurrent expenditures and no relationship was found between performance in self-help economic activities and academic achievements of the school.

As societies open up and trade is liberalised, institutions of higher learning could be financed by donations from various sources, including business communities, religious and charitable organisations and individuals who may save by training their children locally, once these institutions have improved standard-wise. There are many parents in this region who are sending children to schools to the north. An efficiently-run private university could become a foreign exchange earner.

The other venue which could contribute greatly to university financing is the community approach. In practice, for many African countries, if not in all of them, there is a lot of community resources catering to secondary vocational and primary levels of education[7-8-9-10-11-12]

Koso Thomas (1991)[13] in a paper to the Regional Advisory Committee on Higher Education in Africa has suggested a number of ways for university financing:

(i) Introducing tuition and other fees where there are currently none being charged and increasing them where they exist but are unrelated to real costs.

(ii) Encouraging the establishment of privately owned and financed higher education.

(iii) Introducing a credit system for students with repayment either in cash or kind.

(iv) Introducing a taxation system specially affecting beneficiaries of the higher education system, both graduates and their employers.

(v) Soliciting regulated and regular aid from bilateral and multilateral agencies tied exclusively to higher education objectives, particularly relevant research and special regional courses.

(vi) Mobilization of new non-government resources and economic use of available resources.

(vii) Reducing funding on certain oversubscribed humanities course options to release funds for other more development-oriented programmes.

(viii) Increasing the contribution from industry, particularly in the financing of research and development activities.

(ix) Launching of special projects for the local production of textbooks and laboratory equipment.

(x) Joint regional funding of specialized research centres in Africa.

(xi) Sharing of resources within and across country institutions.

(xii) Provision of externally funded scholarship and fellowship programmes tenable in higher educational establishment in Africa.

(xiii) Mobilizing resources from the more affluent African states for mutually beneficial programmes cited in the least developed African countries.

(xiv) Increasing assistance from UNDP, and other international bodies to developing African countries to aid higher educational development.

(xv) Setting up fund raising organs for direct appeal to local and international sympathizers for endowment and other ad hoc relief schemes.

All these approaches to higher education financing seem workable within the limits of social unrest, but they do not show how much of total recurrent expenditures they represent.

Additionally in trying to work out different ways of university financing, the universities may lose out in some of their mission. Petty trading in order to raise incomes for universities may not be appropriate. It is, therefore, unlikely that the present financial sources of universities will change much in the near foreseeable future.

1.5 The implications of autonomy

As long as the institutions of higher learning are, by and large, publicly financed there will always be a strong state influence on the administration, the academic members of the staff and the student body. The auditor generals who in some countries are 'above the law' have obligations to ensure that public spending is in accordance with the budgets presented to Parliament. Yesufu (1973) in Saint (1992)[14]

"The general view was that whatever the position in the more developed countries, the university in Africa occupied too critical a position of importance to be left alone to determine its own priorities. The university is generally set up on the initiative, and at the expense of, the government to meet certain objectives. The government, too, by virtue of its position of leadership in the task of planning and execution of economic and social programmes, seems the best placed to determine the priorities for the universities. The African university should, in normal circumstances, therefore, accept the hegemony of government.

In one sense, financing of higher education institutions by the state makes them vulnerable to government ruling and regulations which automatically makes them less autonomous. Ongoing research and literature put emphasis on efficiency in universities through increased resources and internal resource adjustments. These objectives can hardly be achieved without universities raising funds or at least controlling their resources.

1.6 Academic Staff Associations

Another kind of autonomy of institutions of higher learning is embedded in the controversial issue of academic freedom which a leading statesman, Julius Nyerere of Tanzania said is to be earned and not given. Sometimes academic freedom is fostered by academic staff associations. A typical role of an association is to look after the welfare of the academic staff and to negotiate with the administration and the councils concerning matters which affect members of staff and their families. These matters include staff housing, salaries, pension and superannuation schemes, conditions pertaining to ordinary leave, sick leave, sabbatical and study leave, transportation, installation grants and loans, education allowances for children, and all such other benefits as may be deemed appropriate.

Although it may be argued that academic staff association should not have the right to resort to industrial action, such as strikes or other form of work stoppage, such actions are useful in 'sending messages' to the university authorities that all is not well and that staff are not satisfied with their conditions of service. They can then use methods of collective bargaining in order to persuade the authorities to improve their situation. It is, therefore, generally acknowledged that the staff should have an organisation through which their voices can be heard, and that the administration should not only encourage the formation of an academic staff association but also support and respect the association once it is formed. Occasionally associations are used for general academic matters.

1.7 Student Unions

There is always a conflict between student unions and the university and/or between them and the state in almost every campus. Universities have tired various methods of channelling the energies of their student unions into productive directions. For example, at the University of Dar es Salaam, the student unions fall under the supervision of the party youth organisation. Within these limits, however, the student unions have considerable power, and student representatives sit on all the major committees of the university. In

Zambia the party youth organisation has similarly, on a number of occasions, tried to put the university students union under its supervision. This has not succeeded so far, as students have been opposed to the move.

A political solution to campus crises needs to be worked out. One way of doing it is to accept student unions as political forces. There is evidence that students unrest on campuses are inspired by political issues. (see Omari 1991 in Saint 1992 unpublished)[15]

> "Political issues seemingly prompted the majority of these confrontations. As an illustration, a survey of student unrest in African universities over a 25-year period identified 86 separate incidents. These were categorized as to their principal cause: political, economic, managerial or student welfare-related. Political issues accounted for 52 per cent of these cases."

1.8 Status of Teaching and Researching Personnel

Academic staff associations and student unions are essential for an African university whose academic policy-making is tantamount to a political process. Both pressure and legitimacy have to be applied by legal institutions representing the interest of the staff and students.

Until recently, when teacher associations and student unions took to the streets, there has been little sensitivity about their status. In some African countries there have been massive killings of academics, for example, in Sudan and in Uganda by Idi Amin. State interference in the day-to-day management of the university has caused unrest and slowed down the normal activities of universities: teaching and researching. Research must be conducted in an agreeable climate, especially in communities where a research culture is non-existent. [Eastern and Southern African Universities Research Programme (ESAURP) 1990)[16]

There are discussions now to encourage university teachers to provide in-service training to secondary and tertiary institution teachers, in an attempt to raise the level of education at lower levels. Such plans, of course, are easily advanced than implemented.

2. Improving the Relevance of Higher Education

2.1 Higher Education and the World of Work

A few African countries developed experiment in the diversification of secondary education, in the hope the trend would be further pursued in post-secondary education which in turn would address the changing employment needs. A review of the experiment carried out in Tanzania and Colombia by the World Bank which was one of the initiatives of the policy concluded that the policy was a total failure, as noted by Cooksey (1986)[17], Cooksey and Ishumi (1986)[18], Psacharopoulos (1987)[19] found out that:

> "The external effects of introducing diversified secondary schooling could be measured, in principle, by looking at differential

earnings, and costs between types of schooling. Subject to a number of qualifications, mean earnings and costs by subject have been utilized so as to arrive at a rough approximation of social rates of return."

"In the case of Colombia, no major differences were discovered between the returns to education for those coming from the two types of schools and different tracks, the overall profitability to such investment being of the order of 8 to 9 per cent."

"By any standard, the rates of return in Tanzania are low: ranging form 2 to 6 per cent. The technical bias has the lowest return - a reflection of the higher unit cost associated with the bias. Conversely, the academic bias exhibits the highest rate of return. All that can be said at this point is that the first indications do not corroborate the hypothesis that the introduction of pre-vocational studies into secondary schooling can be justified, on the basis of their economic pay-off being greater than for academic schooling."

This conclusion is all around in the sense that for all the "outcomes" - tested equity of access, cognitive achievement and post-sectoral outcomes - none of them showed scores that made a difference between "these students who enrolled in provocative courses and those who concentrated solely on academic programmes". (Psacharopoulos 1987)[20]

Other innovations in higher education did not seem to make a difference either. In the '70s Tanzania launched a programme by which students had to complete one year of national service, and work for at least two years before they could be admitted to the university. Shortly after the policy was introduced women were exempted, followed by exemption of the medical school and other hard science-based programmes such as geology, because they would eventually be left out of higher education participation.

The policy simply increased the number of failures in examinations at higher institutions of learning leading to repetitions or drop-outs (the majority of those failing were found to be mature entrants).

In evaluating the programme many years later Galabawa and Malekele (1991)[21] concluded that:

"Education which changes efforts and concentrates powers for change, in the hands of the official leadership of the party and government, and marginalises the role of teachers community groups and institutions, is bound to fail and like in some vocational oriented institutes, integration of education and work may not reduce the running costs of education as envisaged. Private rates of return were lower for mature (proxy for work experience) graduates than those of direct (proxy for no work experience) graduates."

2.2 Personnel exchange between institutions of higher learning and industry

Universities and other tertiary institutions in Africa, have not come to grips with the ideas of integrating training and research activities into relations with industry. There is virtually no exchange between trainers and management personnel in the production sectors, as part of a life-long education. Institutions have lost this opportunity, because some major industries are quasi-government, hence, cannot be obliged to such arrangements. With parastatals and higher institutions of learning being publicly owned, cooperation could be feasible with one instrument of state determining salary and other fringe benefits. On the other hand, the exchange when justified can work even between institutions of different ownerships so long as there were mutual benefits.

2.3 Higher education in promoting peace and international understanding

Africa's higher education contribution to peace and international understanding is limited. However, for the first time, an African statesman, Dr. Boutros Boutros-Ghali, has become the Secretary-General of the United Nations Organization so one expects contribution from Africa to the solution of international conflicts.

The African brains that had created the Economic Council for Africa (ECA) and the Organisation for African Unity (OAU) has been stymied from contributing to peace issues because of bureaucracy and scarce resources. Indeed, almost every university in Africa has a department of political science and sometimes with international affairs or relations. Courses are offered at graduate and undergraduate levels. Some research is done but very limited in size and impact. This is where the greater contribution to peace could be enhanced through teaching and research.

The international community is now challenging Africa for human rights observations, and installing the appropriate governance in public institutions. All this points to the right direction except research is required to guide future policy development. What might be a severe problem of human rights in the North may be seen differently in the South. Indeed charity begins at home. Universities in Africa could be more rational than they are now by introducing measures that lead to tranquility and peace: equal opportunities for both men and women - a movement from about 15 per cent women and 85 per cent men, a kind of combination of the student bodies and their professors.

Universities can be rational and address themselves to questions of governance, efficiency and equity in the distribution of university services and in the way these services are paid for. Why would African universities expect peasants to pay for higher education and by so doing subsidize the rich man's education?

These irrational practices, lack of courses on peace, human rights, and the lack of research in this area and lack of participation in functions that promote peace, deprive countries of their rightful place in promoting peace in Africa and intercontinentally. University courses in social psychology, for example, could focus on the cultural ill practices which, for instance, make one sex superior to the other. On sex superiority of boys in Africa, Birgit Brock-Utne[22] quotes

Jeanne Martin Cisse:

> "Women are educated in this way, for family life in order, first and foremost, to serve men to whom they owe complete obedience. They had to show submissiveness to their husbands, fathers and brothers, so that education was a form of alienation, and a means of ensuring the subordination of woman to man. This education was given by the older women who decided that all the girls in the clan would be required, on reaching a certain age, to undergo a period of special training to harden them and teach them to bear the lot which was and had to be theirs. Such conditioning was intended to improve what were held to be qualities of wife and mother in the African woman and, at the same time, to strengthen her inculcated feeling of inferiority: thus, justifying the Maninka proverb which says that a woman's devotion and unconditional submission to men will make her worthy of giving birth to a hero."

Increased exchange of university students and staff would enhance the awareness of appreciating each other's culture and implicitly promote understanding. Link arrangements may develop some understanding between North and South: but there must be mutual benefit to both sides.

In summary, the university in Africa, except in countries like \Ethiopia, where community participation in internal politics has played a major part, has not contributed much to international understanding.

2.4 Higher education and environment

In Africa the most eminent environmental problems are those associated with the degradation of the land which is heavily depended upon, given the absence of an adequate technology and a sound industrial base. Poor farming and grazing practices are causing soil erosion and deforestation, both contributing to desertification. The compounding effect of this is seen mainly in droughts and generally poor agricultural harvest, leading to famine. Currently the African environmental problems constitute a crisis, preoccupying the minds of scholars and decision-makers. The central concern to which this paper is also addressed is whether the capacity to manage the environmental crisis in Africa exists.

Environmental concerns are multi-disciplinary in nature and multi-dimensional in character. While they require the interplay of literally all the natural and social scientists, they also embrace social, economic, and religious aspects of the society concerned. Given this complexity, it raises one fundamental question. Does Africa possess the institutional capacity to deal effectively with this complex environmental problem? Does it have the managerial competence, the institutional capacity, and the resources base to support a comprehensive environmental protection plan? Answers to these questions invariably form the essential dichotomy of the environmental prospects, facing Africa today. If the capacity is not obtaining, then there is no shortcut to the problem. The capacity has to be built gradually, and not until it is in place, can we expect an effective management of the intricate environmental issues.

The contribution of higher education in environmental problems should be seen through higher education participation in the foundation of policy and legal framework of environment issues, in the institutional set up within institutions of higher learning, the resource base available to handle environmental issues and in the ability of higher education centres to address the questions of environment on a regional and international level.

This is an ideal situation. In practice, higher education institutions have been overtaken by events as far as environmental issues are concerned, compared to national concerns, where special bodies to coordinate environment matters (perhaps with donor's encouragement) have been set up and are backed by legal instruments of the state.

Surely there are course in geography, marine biology, health education and in demography that deal with environment in one way or another. Centres of environment summit management could serve the continent through regional training programmes and research. Perhaps from the US$140 billion for investment in the environment by year 2000 (UNU WIDER). The African Association for Public Administration and Management (AAPAM) has recently commissioned the author of this paper to review environment management capacity available in Africa. The report will shed light on the situation.

3. Developing Regional and International Cooperation

3.1 Mutual recognition of higher education studies and diplomas

Africa's education system falls into five to six categories which are primarily based on systems in colonial master country systems: Francophone Africa after France, Anglophone Africa after the United Kingdom, the former Portuguese colonies after Portugal, Sudan after Egypt and Ethiopia with a combination of Italian and American system, and Somalia after the Italian system of education. The time after independence has witnessed modifications of these systems to suit local circumstances, and in so doing expand the area of variation. Therefore, certification and reward systems have differences. The general pattern is that a course of two to three years after four years of secondary education is ordinarily rewarded with a certificate; while diplomas are for tertiary education after senior secondary usually a non-degree conferring institutions. Universities also offer diplomas for one a one-year course on a special programme offered to graduates or graduate equivalents. The degrees offered by the universities have similar patterns but differ in course content and in core and optimal courses. However, general bachelors' degrees in arts and social sciences and natural sciences are acquired within three to four years, depending on the entry point. Professional degrees take a bit longer. Medicine and architecture take the longest time ranging from 5 to 7 years. Efforts by UNESCO to standardize certification and reward systems have not brought tangible results (see Appendix).

3.2 Promoting the mobility of teachers and students

The notion of a student-staff- and research-information exchange is not new. During the Federation of Rhodesia and Nyasaland which is now Zambia, Zimbabwe and Malawi, and during the cooperation between Botswana, Lesotho and Swaziland in the 1960s as well as during the East African Community which broke down in the early '70s, cooperation existed. But then there has been a period of a decade and a half when financial cooperation for education did not work for African universities. Institutions like ESAURP working in this area could not attract institutional funding.

However, hard economic realities dictate that there are economies of scale in student and staff exchange, research cooperation and exchange of publications, public lectures, external examinations, subject meetings and conferences, second language regional training development programmes, information exchange, training of librarians and regional curriculum reforms. Today, there are many institutions at the regional level to cater to a variety of functions. ESAURP (Eastern and Southern African Universities Research Programme)[23] charged with the following functions is an example:

i. To bring African scholars, policy makers and agencies, both private and public, to recognize the importance and contribution of manpower development in the social and economic development of the region, through research, seminars, conferences and workshops.

ii. To encourage joint/collaborative research and consultancies, workshops and/or training programmes with other institutions in promoting regional cooperation in the area of human resource development and inter-institutional linkages.

There are other regional and indigenous establishments for virtually the same functions, namely, to try to save by economies of scale.

The Southern Africa Development Coordination Conference (SADCC) was formed in order to reduce dependency on South Africa, and to conduct economic investments at the regional level, in order to benefit from the economies of scale.

In order to fulfill these objectives, sector institutions were established and the relevant ones are Southern African Centre for Cooperation in Agriculture Research (SACCAR) in Gabarone and Regional Training Centre (RTC) in Mbabane, Swaziland. While SACCAR has concentrated on research in agriculture, RTC, as the name clearly indicates, is an institution to coordinate training the region[24]:

> "One of the principal areas of cooperation in higher education, proposed by SADCC, is the area of student exchange. It was agreed that programmes in which students would be exchanged would be selected. That is, not every university, in this region will have programmes the other university offers, to be feasible for sending students on exchange programmes."

Student exchange programmes are hampered by a number of problems: cost element, incompatibility and lack of standardisation of certificates. In the past transport cost was a problem. Now the allowance is the problem. Only some countries which are relatively richer are able to support their students to pursue studies in neighbouring countries.

There is also incompatibility in programmes. For example, the universities in Botswana and Swaziland have a four-year programme for BA degrees but admit their students to the universities after 'O' level; whereas in East Africa, except in Kenya, they have a duration of 3 years for their BA degrees. After 'A' levels Kenya has introduced a 8:4:4 formula. There are moves to seek equivalent standards for student exchange purposes, but they have yet a long way to go.

Apart from the abovementioned areas of cooperation in higher education, the region practices a staff exchange programme and external examination. Due to the high cost of bringing in examiners from overseas, usually from universities of former colonial masters, this practice has been discontinued as many of the universities of the region can no longer afford. Cooperation in higher education at regional level can only continue with the strengthening of other sectors, such as trade or the political will of all concerned countries to provide financial support.

4. The Establishment of International, Regional and Sub-regional Networks of Universities

The Association of African Universities Secretariat in Africa has commissioned a study to take stock of sub-regional and regional research and development networks of universities in food and agriculture, in the medical societies and in the basic and applied societies. The idea is to study and consult a number of countries and institutions within Africa to document past and existing R&D networks in Africa, assess their impact on strengthening R&D capacities as well as their contribution to development guidance in planning universities-based regional and sub-regional collaborative Research and Development programmes.

The intention is to facilitate linkages among universities so as to provide ample opportunities for scholars to communicate. It is conceivable that such centres of excellence for maximum use of facilities may be in the making. The facilities are required for training for research and consultancy services. Again the Association of African Universities (AAU) has commissioned a report to appraise the university-based consultancies, in terms of available capacity and where gaps exist. The aim is to study and consult a number of universities, to document the study and consultation missions, document and assess consultancy services and capabilities in African universities and ascertain the need and the feasibility of setting up a Regional Universities Consultancy Bureau (RUCOB), to propose its location and modus operandi.

AAU studies are likely to be frustrated by lack of coordinated information among the African centres of research and higher learning. For example when ESAURP/PADIS research task directory came out of print in 1990, there was no money to distribute to countries and institutions that had provided information on research. A second round to update the directory has been funded again by an outsider, the Carnegie Corporation of New York. The resource available will not suffice to record most of the research undertakings.

However, the situation is not that desperate. There is a new thinking among importers of higher education in Africa, about training regionally. Such problems as Third Country training, relevance of curriculum and problems encountered by African students in overseas countries contribute to raise the question of promoting training regionally. Present attempts to encourage regional training are still weak and represent small numbers of trainees. Institutions supporting inter-regional programmes are few, for example, German Academic Exchange Service (DAAD) of Germany does support in-country training. So does USAID, British Council, DANIDA, SIDA and NORAD, although most of the graduate programmes are still, by and large, obtained from the West. The Afro-American Institute noted once that over 75 per cent of African scholars obtain their post-graduate knowledge in North America. Few, if any, of the graduate training and research centres has helped monitor some centres of excellence for specialisation (see Appendix).

In 1982 ESAURP made a strong recommendation emanating from the impact study that[25]:

> "Overseas training should continue for specialized occupations and professions for which local and regional demand may be too modest to justify the establishment of training institutions. In such cases the following point should be observed: institutional combined efforts, for example, higher degree students taking courses in overseas institutions but conducting research at home, might produce better results than if the whole programme is pursued either locally or overseas."

Yet such efforts are frustrated by a number of factors which characterize many African institutions of higher learning including lack of communication, institutional capacity, resources, regular community courses in the African context, the existence of rigidities in the North's system of offering educational support to Africa and poor management. Hereunder are some examples of training priorities of developed commonwealth member countries. Examples of training paid for by others (Anglophone Africa):

Canada	- CIDA concentrates in project-related technical training and tertiary education. - ICDS assists in the development of joint ventures between Canadian universities in the South.
New Zealand	- Concentrates in the South Pacific region and training is for the needs of the rural poor in agriculture, fisheries and forestry.
Britain	- Higher education assistance is funded by ODA with British Council acting as an agent. British aid in higher education concentrates on manpower training in the English language and technical training. At the higher education level in 1987/88 ODA's assistance to universities and polytechnics in developing commonwealth countries amounting to about £20million spent as follows:

Table: ODA's Typical Higher Education Allocation for 1987/88

AMOUNT	ITEM
1. £10 million	Training and staff development
2. £4 million	Supply of expatriate staff & consultants
3. Over £3.5 million	Capital development (buildings and equipment)
4. £3million	Support of institutional links
5. £0.4million	Books

Source: commonwealth Secretariat - Progress through Cooperation. Sixth Report of the Commonwealth Standing Committee on Student Mobility and Higher Education Cooperation, June 1989.

Australia -	(AIDAB) Mostly goes to strengthening the teaching research and administrative capacities of institutions in neighbouring developing countries.

The Commonwealth multilateral assistance, for example, the Commonwealth Fund for Technical Cooperation which has an overall budget of approximately £25million annually, spends only £5.8 million for promoting direct South-South cooperation in training and institutional-building in the Third World. These examples from Commonwealth countries demonstrate that training favours the part that promotes either employment or sustains training institutions at home.

5. Conclusion

In conclusion, this chapter points out universities in Africa encounter tremendous problems financially, managerially and with the State. It also strongly emphasizes that unless the university house becomes "clean and clear" it will not be able to make contributions in the leadership of the whole educational system.

It is evidently clear in this paper that universities in Africa like universities elsewhere, will need public funding by over 80% and the idea of engaging the university in petty business is unthinkable. Adjustments in the training programmes are necessary to meet present employment needs. The African university must contribute in solving African problems, Saint (1992)[26] summarizes the problems as follows:

> "Many of the critical problems currently confronting Africa - environmental deterioration, urbanisation, agricultural development on marginal lands, AIDS - must be addressed by professionals capable of utilizing information and analytical tools from several disciplinary areas. Yet degree requirements at many universities oblige the student to follow a single disciplinary track. Additionally, pervasive chalk-and-talk teaching methods with little opportunity for hands-on

experience in problem analysis provides an education which is largely conceptual and difficult to transfer to the work place."

APPENDIX I

SOME SPECIALIZED REGIONAL INSTITUTIONS IN AFRICA

NAME OF THE INSTITUTE	**LOCATION**
1. (i) International Centre for Insect Physiology and Entomology (ICIPE) (ii) Institute of Computer Science (iii) Institute of Development Studies (iv) Institute of African Studies	University of Nairobi
2. (i) Regional Health Training Centre (ii) The Institute of Mining Research (iii) The Centre for Applied Social Science (iv) The University of Lake Kariba (v) Institute of Development Studies	University of Zimbabwe
3. (i) The Eastern African Statistical Training Centre (ii) The Institute of Marine Science (iii) Institute of Resource Assessment (iv) The Economic Research Bureau (v) Institute of Development Studies	University of Dar es Salaam
4. The Institute of Environmental Studies and Animal Production	University of Khartoum
5. (i) The National Institute of Development and Documentation (ii) The Institute of Adult Education	University of Botswana
6. (i) The Kafue Basin Research Project (ii) The Tropical Disease Research Centre in Ndola	Zambia
7. Centre for Social Research	University of Malawi
8. The Association of African Universities (AAU) Accra - Ghana Functions: Centralizes data and information for all institutions of Higher Learning in Africa	Accra - Ghana
9. The Bureau of the Association of Partially and Wholly French-speaking University (AUPELF) in Dakar. Functions: Centralizes data and information for all institutions of Higher Learning in Francophone countries. Achievements: AAU and AUPELF have developed the information base needed for determining programme institutions for design of joint degree programmes and other cooperative initiatives.	Dakar
10. The International Association of University Pedagogy (AIPU) Functions: To sensitise University Staff to the importance of pedagogical innovation and applied Education Research	

NAME OF THE INSTITUTE	LOCATION
11. The Comite Africain et Malagache de l'Enseignement Superieure (CAMES) based in Ouagadougou - Burkina Faso Functions: (i) To coordinate international development assistance to Higher Education in the Francophone Zone. (ii) Serves to ensure uniform standards in the quality of instruction and research through its review of all faculty promotion and tenure requirements.	Based in Ougadougou - Burkina Faso
12. Eastern and Southern African Universities Research Programme (ESAURP) Functions: i. Creates an opportunity to bring African scholars, policy makers and agencies, both private and public, to recognize the importance and contribution of manpower development in the social and economic upliftment of the region through research, seminars, conferences and workshops. ii. Encourages joint/collaborative research and consultancies, workshops and/or training programmes with other institutions in promoting regional cooperation in the area of human resource development and inter-institutional linkages.	Secretariat - Dar es Salaam, Tanzania

APPENDIX II

Programmes	Addis Ababa	Asmara	Botswana	Dar es Salaam	Eduardo Mondlane
BA, B.Ed., BA (Ed.) Entry qualifications Duration/academic years Award	IV 4 BA, B.Ed.	IV 4 BA	IV 4 BA, B.Ed.	IV, M 3 BA, B. Ed.	After 11th Class 3 BA
B. Com Entry Qualifications Duration/academic years Award			IV 4 B. Com.	VI, M 3 B. Com.	
B.Sc., B.Sc. (Geo), B.Stat Entry Qualifications Duration/academic years Award	IV 4 B.Sc.	IV 4 B.Sc.	IV 4 B.Sc.	IV 3 B.Sc.	
B.Sc. (Eng.) Entry Qualifications Duration/academic years Award	IV 5 B.Sc.			VI 4 B.Sc.(Eng.)	After 11th Class 3 - 4 B.Sc. (Eng.)
LLB Entry qualifications Duration/academic years Award	IV 5 LLB		IV 5 LLB	VI, M 3 LLB	
Medicine Entry qualifications Duration/academic years Award	IV 6 (M.D.) 4 (B.Phar.)			VI, M 5 (M.D.) 3 (B.Phar)	After 11th Class 6B.Med Ch.B
B.Sc.(Vet.,Agric., For.) Entry qualifications] Duration/academic years Award	IV 5 (Vet.) 4(Agr.Ed)				After 11th class 5 B.Sc.(Vet.)
Journalism Entry qualifications Duration/academic years Award					

Education for All in Latin American in the 21st Century and the Challenges of External Indebtedness

Fernando Reimers

On 9 March 1990 the 1,500 participants in the World Conference for All in Jomtien, Thailand[27], adopted the *World Declaration on Education for All: Meeting Basic Learning Needs* which proposed that all countries should achieve universal access to and completion of primary education by the year 2000, while universalizing access and promoting equity, focusing on learning, broadening the means and scope of basic education, enhancing the environment for learning and strengthening partnerships. This declaration emphasized the challenges to achieve universal basic education stemming from debt burdens and economic stagnation crippling the economies of many developing countries[28]:

> "...the world faces daunting problems: notably mounting debt burdens, the threat of economic stagnation and decline, rapid population growth, widening economic disparities among and within nations, war, occupation, civil strife, violent crime, the preventable deaths of millions of children and widespread environmental degradation.
>
> These problems have led to major setbacks in basic education in many of the least developed countries. In some other countries, economic growth has been available to finance education expansion, but even so, many millions remain in poverty and unschooled or illiterate. In certain industrialized countries, too, cutbacks in government over the 1980s have led to the deterioration of education."[29]
>
> The declaration proposed a renewed commitment to basic education for all.

This paper examines the state of basic education in Latin America[30], highlights the challenges stemming from the heavy debt burdens crippling the economies of many Latin American countries and concludes proposing some lines of action to respond to the call of Jomtien.

1. An overview of Basic Education in Latin America: From the golden years to the era of adjustment

During the 1960s Basic Education in Latin America experienced a remarkable quantitative expansion. Human capital theory was in vogue at the time, and in 1962 when the Ministers of Education and Finance of the countries of the region met as a group for the first time, the latter rapidly agreed to finance educational expansion, as a way to finance development[31]. Enrollments in primary education boomed in the 1960s and 1970s as can be seen in Table 1 (see appendix). The rate of growth of enrollments, however, declined for most countries in the '80s, which may reflect the fact that it is harder to enrol the last 10% or 5% of the age cohort but also the loss of momentum of the expansion of basic education systems in the 1960s and 1970s.

Schools were built, teachers were hired to support this educational expansion and the State paid the bill allocating increasing shares of resources for education. Table 2 shows that for the region as a whole the number of primary schools increased by over 2% annually from 1965 to 1970 and almost by 4% a year between 1970 and 1975, which growth decelerated in the 1980s. The number of primary school teachers grew 7% a year from 1965 to 1970 and at 6% a year from 1970 to 1975, also accelerating thereafter.

This progress of educational expansion would soon come to a halt in what has come to be known as the 'lost decade' in Latin America - the 1980s. During this decade, Latin American economies experienced severe economic setbacks: mounting external debts and the consequent programmes of structural adjustment to close foreign exchange and fiscal deficits. With adjustment came the realization that not all sectors and groups in society would suffer the burden of adjustment equally. Education turned out to be a particularly vulnerable sector.

2. The challenges of external indebtedness

Latin America is, tragically, the best of all places to test the hypothesis that debt servicing can squeeze educational development. As we have seen, it is a region where education expanded vigorously in the 1960s and 1970s. Yet, since the early 1980s it is also the area of the world hit hardest by external debt - 11 of the 17 most highly indebted countries in the world are in Latin America[12].

Table 3 summarizes the increases in debt levels as a percentage of exports in Latin America. We can observe that the level of debt servicing as a percentage of exports has increased substantially between 1970 and 1987, averaging 4% of growth every year from the 1970 levels (unweighted average). Only Haiti and Panama have lower servicing levels in 1987 than in 1970, all the other countries experienced increases in those levels (5% per year on average, excluding Haiti and Panama). The increases in debt levels as percentage of exports are most significant after 1975.

The average (unweighted) annual growth levels of debt servicing for all countries of the region increased from under 2% between 1970-75, to 5% between 1975-80, and to 6.5% between 1980-87.

The reason to expect an impact of the external debt on educational finance stems from the adjustment programmes undertaken as a response to balance of payments difficulties and fiscal deficits. Structural adjustment involved reductions in government expenditures as a means to curb domestic aggregate demand. Governments may implement adjustment programmes voluntarily or under pressure from international financial institutions in order to receive more loans. External debt management during the 1980s emphasized debt but actually repayment, the focus was on increasing foreign earnings in order to continue servicing the debt. A side effect of this shortsighted view of the problem was a neglect in the levels of investment and production, reductions of internal consumption and salaries, and in many cases financing of government budgets with inflationary means. The net result is that during the 1980s most of Latin America experienced no growth. More recently national governments and international banks have recognized that the management of external debt cannot be at the expense of long-term growth and that some debt reduction is necessary. The Brady plan is an attempt to produce effective debt reductions of commercial debt but this proposal - and probably all future proposals for debt reduction - calls for adjustment and hence increased pressure to reduce budget deficits. The fact that to date, only three Latin American countries - Costa Rica, Mexico and Venezuela - have renegotiated with Brady-type schemes suggests that the future has no easy solution in sight.

Once governments are faced with the fact that they have to cut their spending, the next question is what has to be cut and the magnitude of the cuts for each sector. Elsewhere I have documented that the adjustment process had a disproportionate impact on education expenditures as a percentage of government expenditures and of GNP[33]. In a dialectic relationship with reduced budgets education lost political support among policy elites. A former senior planner of the Mexican Secretary of Education has documented that the governors of several provinces told him in the late 1980s that education no longer had the political and social priority it had in previous decades[34]. In March 1990 I presented some research findings documenting the disproportionate impact of adjustment programmes on education finance at the International Congress in Educational Planning and Management sponsored by UNESCO and by the Mexican Secretary of Education[35]. The next day, a major local newspaper ran an editorial called 'Education and Resources' which said:

> "...One of the participants said that the reductions in public expenditures in education in Latin America were due to the pressures of the international financial institutions such as the International Monetary Fund. This may be the immediate cause, but the original cause, the true cause is the management mess in most of these countries, even more many of these credits have been given precisely to be spent in education... In our country we have a budget which is, if not optimal, close to what is needed, but unfortunately the political contamination of education at all levels has made it a means to satisfy personal ambitions, to negotiate positions, all of this encourages an aggressive and incompetent bureaucracy which intercepts most of that budget before it reaches the true needs of education..."(*El Heraldo*, Editorial. March 29, 1990. My own translation).

Whatever the political rhetoric, adjustment has meant reduced resources to finance education both from the Central Budget as well as from all other public accounts.

Table 4 shows that the annual growth rate of constant expenditures in education of the Central Government is substantially higher before 1980 than after this period. In all the countries examined constant educational expenditures grew, on average, by 6.99% per year between 1970 and 1979 (unweighted average). After 1980, however, that growth became negative - 0.01% on average. The impact of the adjustment was thus to slow down the rate of growth of educational expenditures. Even though there are no net reductions in countries, in them the expansion of educational expenditures flattens out during the period of highest debt levels and consequent economic adjustment.

The reductions in expenditures for education are more noticeable in the National (as opposed to Central) budgets, suggesting that the cuts in education expenditures were even higher in the provinces and states than at the Central level. Table 5 shows that the average annual rate of growth of constant expenditures in education is higher before 1980 than in the 1980s. Between 1975 and 1980 total expenditures in education grew in all countries of the region. Between 1980 and 1985 total expenditures declined in real terms in 12 of the 18 countries for which we have data. In addition, the rate of growth of total expenditures declined in three other countries. Only three countries (Honduras, Nicaragua and Panama) experienced higher rates of growth after 1980 than before. In 1985 Panama had, after Haiti, the lowest level of external debt servicing as a percentage of exports, with the consequent lesser pressure to adjust its economy. The Central American Conflict translated into high levels of foreign aid to Honduras, with similar reduced pressures to adjust its economy. A higher priority accorded to education and/or changes in government accounting procedures during the Nicaraguan revolution may explain the drastic increase in the rate of growth of expenditures from 1.63% per year between 1975 and 1980 to 12.47% per year between 1980 and 1985.[36]

With rising population, these reductions in the rate of growth of expenditures led to net reductions in expenditures on education per capita as can be seen in table 6.

While expenditures in education per capita decreased in real terms in five countries between 1975 and 1980, they decreased in 16 countries between 1980 and 1985. The only exceptions are Honduras, Nicaragua and Panama, maybe due to the reasons given earlier. *On average (unweighted) per capita expenditures in education increased by 4.29% per year between 1975 and 1980, while they decreased by 6.15% between 1980 and 1985. The progress in educational finance made in the '70s was undone in the '80s.*

These cuts in financial resources have led to restructuring of the education budgets in ways which are inconsistent with efficiency and equity objectives.[37] One reason for this is that the implementation of the cuts has been shaped by the politics of the budgetary process[38] more than by a technically rational criteria. Bureaucratic politics have shaped who is to bear the cuts, so one reason why primary education has suffered disproportionate cuts is not only that university students are a politically vocal group, but also that the university sector has a strong capacity for policy analysis to justify its budget requests. An example from Venezuela will illustrate this point: in June 1990 I interviewed the Director of Planning and Budgeting of the Venezuelan Ministry of Education who said:

> "My office can do very little about the universities. They have their own policy body, the National Council of Universities, composed of the Presidents of the Public Universities and the Minister of Education. This body is advised by its own planning office: the Planning Office of the University Sector. So our role is basically to give them what they ask for and let them decide how to spend it."

I visited the well staffed headquarters of the Planning Office of the

University Sector and was impressed by a well-endowed library - better than that of the Ministry of Education - their statistical yearbook, comparable to, if not better than the yearbook published by the Ministry of Education. Considering this agency looks after 16 national universities and 26 other institutes of higher education, the administrative support per student is many times over that of students in primary or secondary school.

3. The challenges ahead

The adjustment phase that the Latin American countries will experience at least until the end of the decade, and the political economy of the adjustment that leads to disproportionate cuts in education and in some areas of expenditures within education (e.g. primary education, capital expenditures, scholarships and teaching materials) configure a new scenario that threatens equity and efficiency.

These cuts will compound the challenges in the provision of basic education. The first challenge is a growing population of primary school age. While the growth of children aged 6-11 enrolled in school outpaced the growth of the population of the same age in the 1960s and 1970s, the gap between these two figures has been closing in the 1980s. With the growing student population, that means growth in enrollments needs to keep ahead of population growth to universalize access.

Table 7 shows that if the number of children 6-11 years old enrolled in primary school continued to grow until the end of this century at the same rates as it grew between 1980 and 1985, by the year 2000 there would be 7,921,000 children of primary school age out of school in Latin America. The following countries in the region would still have not achieved universal primary education: Brazil, Bolivia, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Panama and Paraguay. This means that these countries need to speed up their progress in enrolling children just to catch up with the growth of their population and need to reduce repetition and dropout.

But the need for quantitative progress in order to respond effectively to the cry of Jomtien, is just one side of the challenges facing Latin American countries. Another persistent problem is the quality of education. Low quality education has implications for the external efficiency as well as for the internal efficiency of education. This problem is especially acute at lower levels of the system, constraining the opportunities of large groups of the society to enter either highly productive jobs or to aspire to pursue higher studies - since in many countries of the region admission to universities requires passing an entrance test.

Low quality which results in high repetition rates increases the cost of graduating a student and leads many children eventually to drop out. This problem is more prevalent among poor children.

Table 8 shows that while some countries have made progress in reducing their repetition rates these rates are still very high in most of them.

4. Outline of an agenda for educational reform

The educational system of Latin American countries need to respond to these reductions in the levels of public finances with a long-term focus on efficiency and equity.

The 'adjustment era' which Latin America has entered probably until the end of this century conforms a new scenario for educational planning and management. I contend that there are two ways the education system can respond to this new scenario: 1) quick-fix adjustment and 2) planned reform.

Quick-fix adjustments are reductions in the education budgets in those portions that are easiest to cut.

By definition, quick-fix cuts are not implemented to optimize efficiency or equity, hence, they may lead to adjustments that are more responsive to the interests of the most powerful or vocal groups.

Drawing from the work of Hewton[39] in England, I propose that of these two ways planned reform has a better chance to preserve efficiency and equity in the provision of education.

Analyzing the impact of reductions in education expenditures in England, Hewton[40] advances the notion of 'culture of choice', referring to the organisational climate in which educational policy decisions are made. He suggests that reductions in financial resources require more moving from a 'crisis culture' (in which the sense of direction is lost) to a 'culture of cuts' (which attempts to control the decline associated with reduced levels of expenditures).

> "A cuts culture is not associated with termination...nor is it related to major axing of parts of an organization...Rather, it is a culture which is linked to extended periods of marginal contraction. In some respects it might be likened to a crisis culture except that uncertainty is no longer accompanied by very short decision-time. Crises may still intrude into the cuts culture, yet, overall, there is time for reflection, review, evaluation and negotiation. The future may not look bright, but at least there is the opportunity to prepare for it."[41]

Hewton proposes that the emergence of cuts culture will proceed in a three-staged process of response in local bodies of educational decision-making: 1) defensiveness (and denial of the problem), 2) pragmatic adjustment (cut what you can) and 3) reform, where policy-makers realize that short-term adjustment has meant undesired sacrifices in equity or efficiency.[42]

The propositions that follow[43] are based on the assumption that the 'adjustment era' provides the timing and the sense of urgency that creates the need for change in the educational system, making these propositions attractive policy options. The framework within which these options have been developed is one that considers education a crucial component of long-term development, both in terms of its potential to contribute to productivity (efficiency) and to social and political development (equity). These propositions are also developed for the specific context of education in Latin America, and may not be applicable to other regions of the world (i.e. Africa), facing similar financial constraints but with different features in their education systems, labour markets, government and society. The most recent IDB report on the economic and social progress in Latin America summarizes the educational scenario as follows:

> "Despite an impressive increase in primary school enrollment, illiteracy is still high among an important segment of the population in several countries. The adult literacy campaigns launched in almost all of them have had varying results. Also, although in most of the countries almost all school-age children go to elementary school...most of them do not complete that level. The quantitative increase in elementary school enrollment has brought problems of educational quality. In Latin America a high percentage of the schools are incomplete, and repeat and dropout rates are high. In addition to that, teacher training at the elementary and secondary levels is still inadequate."[44]

4.1 Policies to influence educational inputs: Readjusting educational finance

The question here is how can additional resources be made available to redress the impact of the adjustment, while optimizing efficiency and equity.

The pressures of fiscal balance may develop a "culture of cuts" both at the level of the national cabinet as well as within the Ministry of Education.

> "A "culture of cuts" will normally tend to take a short-term view and look for immediate savings, devaluing the long term because of the uncertainties involved; it will be conservative towards change and seek to minimize cost within the existing structure of provision, to the point where this ceases to be viable; it may then encourage radical consideration of provision to transfer costs away from its own budget; it will value economy over improved access and equitable distribution of services; it may support the development of a 'siege mentality' where the focus is on eking out existing resources rather than generating new ones from outside its immediate institutional environment."[45]

Although governments facing resource constraints could be tempted to justify spending less on education based on ideological grounds, this is an inadequate response to the crisis.

Since adjustment programmes have also affected households, it is unrealistic to expect more private contributions to substitute diminished State intervention. Table 9 shows that there is not a consistent increase in enrollment in private schools. In seven of the 17 countries for which we have data, private enrollments decline between 1975 and 1985. In four additional countries, growth in private enrollments average less than 1% per year.

Given the negative incentives at the household level to send children to school, what is needed is *more* State intervention, not *less*, simply to maintain the current levels of educational efficiency. This is certainly a paradox - that the State contribution is needed more when it can afford it the least; but the *need* for that role should not be secondary to the apparent *ability* of the State to fulfill this responsibility. What is needed is an exploration of alternative options to continue carrying it out, in spite of the crisis, the main responsibility of the State for the development of education.

Since not all families have reached the levels of poverty that makes them unable to finance their children's education, what may be necessary, for the sake of equity and balanced development, are redistributive measures that will break what is likely to develop as a vicious cycle of poverty in the absence of government intervention.[46] Those redistributive measures could be taken both within the education sector and at a more general level. Within the education sector they mean charging user fees to those who can afford them, and then using those resources to finance educational expansion for those least able to afford it. User fees at higher levels to finance expansion of education (in quality and quantity) and at lower levels (to reach marginalized groups) would be a progressive way to redress the current imbalances in educational finance. This change would need to be complemented by loans to university students from less favored social backgrounds (which may have a certain grant component if recovery is less than 100% of the present value of the loan). Additional compensatory mechanisms could include partial loan forgiveness for university graduates who directly participated in projects aimed at social development or in other redistributive programmes (either after graduation or in their final years in college).

Experience with student loans in Latin America suggests that recovery rates have been low. New schemes could build on existing experiences to extend and improve this mechanism of finance[47]. The importance of using means testing systems when cost-recovery schemes are introduced cannot be overemphasized since otherwise equity would suffer. This is consistent with the thesis of this paper that any area of policy reform should be approached with a systemic analytic framework. There is evidence in Latin America that quick-fix approaches to cost-recovery can easily lose sight of this systemic view:

> "Chile did raise (university) tuition in the late 1970s while drastically reducing the subsidies to the universities... thereby raising the amount of cost recovery to 25%...But Chile failed to introduce a means testing system, and provide tuition and fee waivers on a more targeted basis to students from low-income families, so by 1985 enrollment fell by 20,000 students and most of these students from lower income families were driven out."[48]

At a more general level reforming finance means generating additional resources for education, for instance, raising additional taxes specifically earmarked for educational services.

The government could also consider seeking foreign assistance directly for education, particularly as means to provide for some of the crucial inputs directly purchased with foreign exchange or to set up programmes to provide education to the most vulnerable groups that have suffered disproportionately the impact of the adjustment.

The policy framework developed at Jomtien may stimulate new efforts to finance basic education in organisations such as the World Bank or the Inter-American Development Bank. Speaking on behalf of the four sponsors of the world conference, the executive director of UNICEF said in the closing session at Jomtien:

> "UNICEF, the World Bank, UNESCO and the UNDP are in agreement that a special effort should be made to ensure that by the year 2000 virtually all children are achieving a common early level of achievement, in literacy, numeracy and basic life skills."

Another area for policy initiatives is to tap profit and non-profit organisations for additional contributions. Given that their interest may focus on certain educational activities their contribution could be better linked with special projects in nonformal education. The role of the government in this case could be to act as a catalytic agent of those contributions by providing the policy direction and organisational framework that would make cooperation among different groups and sectors possible.

Financing certain forms of training by special taxes to the industries and workers benefiting from those skills is also an option; there is experience in Latin America[49] with "an excellent hands-on vocational training system financed with taxes from the payrolls".[50]

4.2 Policies to influence educational management

The fact that the crisis of education described here has a fiscal origin does not necessarily mean that the solutions have to be confined to financial reforms. Although much can be done in this field in the form of tapping new sources of finance, a *systemic* response to the fiscal constraints would require looking for policy options in the field of management as well. The rationale for management reforms is that better utilisation of scarcer resources may preserve efficiency and equity of education. Better management may provide the environment to improve the technical efficiency of inputs.

One of the critical issues to implement policy changes that may improve educational management seems to be how to create conditions by which the existing information, data and research become relevant in the decision-making process and how to create the conditions that will allow the education ministries to learn from their own experience.

Within the Ministry of Education an emphasis on programme and project allocation would be desirable to facilitate planning and evaluation. The scarce literature investigating the education budget process in Latin America confirms that programme allocations are not used even when formally required.[51]

The importance of an up-to-date and efficient system of educational statistics is evident given that those statistics provide the indicators to monitor the workings of the educational system and to assess the impact of policy changes. Nowadays the availability of low cost computer equipment makes it easier to establish management information systems which close the gap between the decision makers and the automated databases. This, together with the increase in computer processing speed and development of user-friendly educational planning software, makes it easier to incorporate an accurate knowledge base to the policy dialogue exploring educational scenarios.

Many statistical offices in the ministries are out of sync with technological developments in this field and educational managers and top decision makers are handicapped by having to rely on outdated statistics. Information on outcomes of the educational system (levels of educational attainment of the population, literacy) is frequently a decade old. The most basic data on student achievement, which would allow monitoring the impact of the adjustment or to assess the cost-effectiveness of different policy options are a rare commodity in most ministries.

Another type of information useful for decision making is the assessment of the implementation of educational innovations in the past or studies examining the effect of policy-related variables on school outcomes such as learning or efficiency rates. This type of information broadens the scope of policy options to be considered by the planners and managers of the educational system and allows the system to learn from the experience gained in the implementation of those innovations or reforms. In Latin America there is an excellent network of information and documentation of educational research (REDUC). This network, coordinated by the Center for Research and Development of Education in Santiago (CIDE), includes 20 research centers in countries of Latin America and publishes the *Resúmenes Analíticos en Educación* (Abstracts of Educational Research), a useful tool to facilitate access to research and documentation about educational innovations carried out in Latin America. Evaluations comparing REDUC with international databases (ERIC) conclude that REDUC is superior in several dimensions which makes it more relevant for decision-making in education policies in Latin America[52]. The fact that national centers associated to this regional network already exist makes it relatively easy to develop and strengthen the links between the Ministries of Education and this live memory of the educational experience in Latin America.

Another option for administrative development would be to incorporate innovation research (to identify cost-effective systems), *evaluation and training planning* as crucial ingredients of the decision-making process. Unfortunately support for education research activities may have diminished as part of the adjustment discussed here. A similar pattern is observed in the growth of research publications in Latin America as was observed in the growth of education expenditures. The average number of articles summarized in the *Resúmes Analiticos en Educación* for each of the Latin American countries increased by 83% between 1976 and 1979, increased by 9% between 1979 and 1981 and decreased by 5% between 1981 and 1984.[53]

A recent study about the use of research-based information by educational decision-makers concludes that there is a loose link between the two.[54] The new scenario of reduced fiscal resources calls for a radical change in the traditional linkage (or lack thereof) between educational research and policy in Latin America. Educational decision-makers need information from reliable and valid studies on the cost-effectiveness of different potential interventions to develop policy scenarios. Research and Policy Analysis units should be set up as advisory bodies at the highest levels of decision-making in the education ministries. This new relationship requires also a shift in research tradition and focus from topics of academic or disciplinary interest into areas of direct relevance for policy. The study of variables which can be influenced by policy should be the primary focus of these research units.

4.3 Policies to influence educational outputs: Sharpening the links between education, work and productivity

Among the issues of importance in the analysis of the Latin American debt crisis are the issues of employment and productivity. Increased unemployment results when the adjustment policies are designed to reduce internal demand. In this sense addressing unemployment *per se* should become a driving force to refocus educational programmes. In addition, a partial alleviation of the crisis is expected from the development of export-oriented industries that would be competitive in world markets. This objective would fuel the need to train human resources with the skills and attitudes to provide that competitive edge. Manpower planning methods could provide a sense of direction for levels and programmes to improve the fit between educational background of graduates and job requirements of openings in the industrial sector.[55] A potential risk in using manpower planning methods for this purpose is that major technological innovations (in the fields of information and genetics, for instance, or in new technologies which may emerge) are likely to transform the occupational structure of leading industries. For manpower forecasts, this means that the coefficients of workers by job sector, and of the educational requirements for occupation by sector are unpredictable from past trends which reflect old technologies.

An option to overcome the risks implicit in manpower planning is to combine it with some heuristic approaches to plan development of the work-force for leading industries and technologies and to plan at the sub-systems (industry or region) level, or use plans as general indicative statements.

4.4 A role for the international community to support education reform efforts in Latin America

An obvious way to ease the financial pressures in the education systems discussed in this paper is to address the debt problem itself. Although most work in this area falls outside the sphere of the education sector, one possibility to alleviate simultaneously the debt burden and provide the resources to finance some of the initiatives suggested here is to establish special funds financed with debt swaps. Debt-equity swaps as debt reduction schemes which exchanged national currency at full dollar value on the dollar for debt purchased at a discounted value on the secondary market. International assistance agencies could purchase debt in the secondary market at a discounted value and exchange with the government for national currency at a higher value - which need not be 100% of the value of the debt - which would then be used to finance education initiatives in the country. From the viewpoint of equity, the projects to be financed with these funds should be those that expanded educational opportunities to marginalized groups and those most affected by the recession and the adjustment programmes.[56]

The research or evaluation phase of many projects financed by international donors is often not completed because the task managers do not emphasize it and/or because there is not enough local capacity to do the research. These monies could be used to fund the establishment of policy analysis units within the ministries of education.

International agencies could also do much to contribute to monitor and reverse the impact of the adjustment on efficiency and equity in the provision of education. Several UUNN organisations have already taken the lead in this matter. UNICEF, for instance, commissioned several case studies early in the 1980s to examine the impact of the adjustment in child welfare[57]; The Division of Policy and Planning of UNESCO sponsored the international conference of Educational Planning and Management in March 1990 of which an important component was to study the kinds of planning appropriate to these years of austerity. The UNESCO Regional Office for Latin America (OREALC) has sponsored various meetings to discuss the subject and several publications[58]. UNESCO's International Institute for Educational Planning has sponsored meetings and publications to discuss the types of planning that are appropriate responses to the era of financial austerity[59]. Other international organizations could contribute to this effort. More systematic ways to monitor the impact of the adjustment could be established, for instance a regular publication such as *The State of the World for Children* or the *Human Development Report* containing case studies, indicators on the impact of adjustment in education, especially going beyond indicators of educational inputs, into processes and outputs. A *knowledge base* could also be established, referencing the existing literature on the subject to facilitate policy dialogue and the exploration of policy options.

Given the focus of the World Declaration on educational achievement and completion, international donors could assist local efforts to monitor educational quality (in terms of both process and output indicators) which may suffer as a result of financial reductions. A positive example in this area are the efforts of the Costa Rican Ministry of Education to administer national achievement tests in basic education, with assistance from the World Bank.

5. Conclusions

From the viewpoint of optimizing efficiency and equity in the implementation of a strategy to achieve education for all, major educational reforms, rather than gradual adjustment are desirable in the 1990s. Policy initiatives to increase the level of fiscal resources for educational are an important component of these reforms. But change is also needed in the management of those resources and in making the education system more responsive to the needs of the economy.

The major obstacle in the implementation of these reforms will probably stem from the political economy of education and adjustment. The international community has a significant potential role to support local initiatives directed at achieving basic education for all in Latin America.

Table 1. Enrollment Rates in Primary Education and Growth in Enrollment Rates in Latin America.

NET ENROLLMENT IN PRIMARY						AVERAGE ANNUAL GROWTH (%)			
Countries	1965	1970	1975	1980	1985	65-70	70-75	75-80	80-85
Argentina	92.6	96.8	97.9	95.1	95.2	0.89	0.23	-0.58	0.02
Bolivia	74.8	67.9	78	86.6	84.3	-1.92	2.81	2.11	-0.54
Costa Rica	101.4	89	92.1	89.3	83.9	-2.58	0.69	-0.62	-1.24
Cuba	90.5	94.6	99.5	97.6	93.7	0.89	1.02	-0.38	-0.81
Chile	100	90.4	92.3	89.6	88.8	-2.00	0.42	-0.59	-0.18
Dom. Republic	73.3	77.3	86.2	99.9	107.3	1.07	2.20	2.99	1.44
Ecuador	73.4	78.7	78.2	87.8	88.8	1.40	-0.13	2.34	0.23
El Salvador	60.9	68.3	78.7	79	73.8	2.32	2.88	0.08	-1.35
Guatemala	43.7	50.4	54.4	60.5	65.4	2.89	1.54	2.15	1.57
Haiti	29.9	33.6	39	36.5	54.7	2.36	3.03	-1.32	8.43
Honduras	68.2	78.4	77.9	80.3	91	2.83	-0.13	0.61	2.53
Mexico	66.6	77.8	83.3	92.6	100.5	3.16	1.38	2.14	1.65
Nicaragua	53.9	64.3	66.5	77.3	84.9	3.59	0.68	3.06	1.89
Colombia	65.9	79.1	87.2	81.8	75.9	3.72	1.97	-1.27	-1.49
Brazil	65.9	73.4	80.5	88.6	90.1	2.18	1.86	1.94	0.34
Panama	82.6	74.1	87.4	88.5	88.6	-2.15	3.36	0.25	0.02
Paraguay	80	88.4	88.8	95.2	95.2	2.02	0.09	1.40	0.00
Peru	70.5	77.7	84.1	86.5	97.5	1.96	1.60	0.56	2.42
Uruguay	85.4	82.8	81.2	83	91	-0.62	-0.39	0.44	1.86
Venezuela	82.6	88.9	92.6	103.2	105.6	1.48	0.82	2.19	0.46

Derived from: Lockheed, M. and A. Verspoor. 1989. Improving Primary Education in Developing Countries: A Review of Pol Options. Manuscript. World Bank. Statistical Appendix. Ratios over 100% are the result of inconsistencies in the enrollment data due to the interpolation of population data.

Table 2. Expansion of Primary Schools and Primary School Teachers in Latin America 1965 - 1985.

Year	Schools	Annual Growth	Teachers	Annual Growth
1965	298,900		1,030,200	
1970	337,700	2.47	1,474,000	7.43
1975	406,900	3.80	1,967,500	5.95
1980	445,700	1.84	2,172,800	2.00
1985	439,300	-.29	2,505,200	2.99

Derived from: Lockheed and Verspoor. 1989. Statistical Appendix.

Table 3. Changes in levels of servicing of the public debt as a percentage of exports in Latin American countries

	Debt servicing as a percentage of exports				Average Annual Growth (%) in debt servicing % exports			
Country	1970	1975	1980	1985	70-75	75-80	80-87	70-87
Argentina	21.6	22.0	16.6	45.3	0.37	-5.48	15.42	4.45
Bolivia	11.3	15.3	27.9	22.1	6.25	12.77	-3.27	4.02
Brazil	12.5	17.9	34.6	26.7	7.45	14.09	-3.64	4.57
Chile	19.2	27.2	21.9	21.1	7.21	-4.24	-0.53	0.56
Colombia	11.6	10.8	8.9	30.7	-1.42	-3.80	19.35	5.89
Costa Rica	10.0	10.7	16.8	12.1	1.36	9.44	-4.58	1.13
Dom. Republic	4.1	4.7	10.3	16.3*	2.77	16.99	7.95	9.01
Ecuador	8.6	4.4	18.9	20.7	-12.54	33.84	1.31	5.30
El Salvador	3.6	9.0	3.3	19.4	20.11	-18.18	28.79	10.42
Guatemala	7.4	1.8	2.4	24.9	-24.63	5.92	39.68	7.40
Haiti	16.7	4.6	4.9	5.1	-22.73	1.27	0.57	-6.74
Honduras	2.8	4.7	10.1	23.0	10.91	16.53	12.48	13.19
Mexico	23.6	24.9	32.1	30.1	1.08	5.21	-0.91	1.44
Nicaragua	10.5	12.0	16.0	10.9*	2.71	5.92	-6.20	0.23
Panama	7.7	5.9	6.0	6.5	-5.19	0.34	1.15	-0.99
Paraguay	11.8	9.3	10.2	21.3	-4.65	1.86	11.09	3.54
Peru	11.6	25.6	31.1	12.5	17.15	3.97	-12.21	0.44
Uruguay	21.7	41.2	12.4	24.4	13.68	-21.35	10.15	0.69
Venezuela	2.9	5.3	13.3	22.4	12.82	20.20	7.73	12.78

* These figures are for 1986.

Derived from: World Bank. World Debt Tables. 1988

Table 4. Changes in Educational Expenditures of the Central Government (in national currency units at constant prices of 1980) before and after 1980.

		EDUCATIONAL EXPENDITURES ANNUAL GROWTH (%)				
Country	Year	Pre 79	1979	Post 80	Pre 79	Post 80
Argentina	1976-86	330.00	415.00	376.49	8.00	-0.01
Bolivia	1972-84	2.35	5.30	5.51	12.32	0.01
Brazil	1970-86	46.00	107.86	145.34	9.93	0.04
Chile	1972-86	10.00	44.08	38.75	23.60	-0.02
Costa Rica	1972-86	1103.63	2516.00	2122.24	12.49	-0.02
Dom. Republic	1973-86	122.25	154.49	123.01	3.98	-0.03
Ecuador	1973-85	5339.10	7913.00	12142.60	6.78	0.07
El Salvador	1970-87	183.47	292.60	149.77	5.32	-0.08
Guatemala	1972-79	99.00	109.33	109.34	1.43	

Honduras	1972-79	114.55	182.52	182.53	6.88	
Mexico	1972-87	46.65	119.21	81.94	14.34	-0.05
Nicaragua	1972-80	565.06	498.65	734.00	-1.77	
Panama	1973-86	137.39	163.60	225.85	2.95	0.05
Paraguay	1972-86	4486.57	7003.67	6544.72	6.57	-0.01
Peru	1972-82	152.93	107.17	169.90	-4.95	
Uruguay	1972-86	1705.88	1784.31	1412.04	0.64	-0.03
Venezuela	1970-86	4082.80	9863.90	10908.30	10.30	0.01

Derived from: International Monetary Fund. Government Finance Statistics Yearbook (several issues).
The third column (Pre 79) contains the expenditures in the beginning of the series indicated in the second column (Year), the fourth column Post 80) contains the expenditure in the end of the series indicated in the second column. The sixth column (Annual Growth Pre 79) is the average annual growth of expenditures between the beginning of the series and 1979. The last column (Annual Growth Post 80) is the average annual percentile growth of expenditures between 1979 and the end of the series.
The figures are given in the following units:
Argentina: Thousands of Australes; Bolivia: Thousands of Bolivianos; Brazil: Millions of Cruzados; Chile: Billions of Pesos; Costa Rica: Millions of Colones; Dominican Republic: Millions of Pesos; Ecuador: Millions of Sucres; El Salvador: Millions of Colones; Guatemala: Millions of Quetzales; Honduras: Millions of Lempiras; Mexico: Billions of Pesos; Nicaragua: Thousands of Cordobas; Panama: Millions of Balboas; Paraguay: Millions of Guaranies; Peru: Millions of Intis; Uruguay: Millions of New Pesos; Venezuela: Millions of Bolivares.

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Table 5. Changes in Total Government Educational Expenditures (Constant 1985 mill. of US$) before and after 1980.

Country	Constant US	Dollars	1985	Average Annual	Growth	(%)
	1975	1980	1985	1975-80	1980-85	1975-85
Argentina	1651.00	2643.00	1200.70	9.87	-14.60	-3.13
Bolivia	117.80	161.00	12.10	6.45	-40.41	-20.35
Brazil	4480.10	7168.30	7987.30	9.86	2.19	5.95
Chile	448.40	727.50	630.10	10.16	-2.83	3.46
Colombia	520.50	578.20		2.12		
Costa Rica	129.60	278.10	162.10	16.50	-10.23	2.26
Cuba						
Dom. Republic	72.40	93.10	75.30	5.16	-4.16	0.39
Ecuador	250.40	579.80	415.40	18.28	-6.45	5.19
El Salvador	137.30	163.70	110.20	3.58	-7.61	-2.17
Guatemala	120.10	187.60	168.70	9.33	-2.10	3.46
Haiti	16.60	31.00	23.50	13.31	-5.39	3.54
Honduras	83.00	100.90	144.90	3.98	7.51	5.73
Mexico	4246.10	4701.90	4424.40	2.06	-1.21	0.41
Nicaragua	82.10	89.00	160.20	1.63	12.47	6.91
Panama	176.10	198.90	237.00	2.46	3.57	3.01
Paraguay	26.80	44.40	46.90	10.62	1.10	5.76
Peru	533.10	545.40	459.40	0.46	-3.37	-1.48
Uruguay		133.80	123.90		-1.53	
Venezuela	2612.10	2910.60	3215.10	2.19	2.01	2.10

Derived from Lockheed and Verspoor. 1989. Statistical Appendix.

Table 6. Total Government Expenditures in Education per person in 1980 in US dollars, by country, 1975-1985.

Country	Expenditure per capita in constant US dollars 1985			Annual Growth Rates (Percentages)		
	1975	1980	1985	1975-80	1980-85	1975-85
Argentina	63.37	93.60	39.28	8.11	-15.94	-4.67
Bolivia	24.07	28.75	1.88	3.62	-42.03	-22.50
Brazil	42.69	59.10	58.92	6.72	-0.06	3.27
Chile	43.98	65.28	51.98	8.22	-4.45	1.69
Colombia	22.01	22.33		0.29		
Costa Rica	65.85	123.88	65.13	13.47	-12.07	-0.11
Cuba						
Dom. Republic	15.24	17.10	12.06	2.34	-6.75	-2.31
Ecuador	35.59	71.38	44.30	14.93	-9.10	2.21
El Salvador	34.28	36.31	22.87	1.16	-8.83	-3.97
Guatemala	19.24	27.12	21.19	7.11	-4.82	0.97
Haiti	3.62	6.19	4.48	11.31	-6.28	2.14
Honduras	26.83	27.34	33.14	0.37	3.93	2.13
Mexico	70.60	67.76	56.77	-0.82	-3.48	-2.16
Nicaragua	37.97	32.56	48.95	-3.03	8.49	2.57
Panama	103.35	101.69	108.72	-0.32	1.35	0.51
Paraguay	9.98	14.11	12.70	7.17	-2.08	2.44
Peru	35.16	31.54	23.32	-2.15	-5.86	-4.02
Uruguay		46.01	42.27		-1.68	
Venezuela	206.25	193.75	185.66	-1.24	-0.85	-1.05
Unweighted Average Growth				4.29	-6.14	-1.34

Derived from: United Nations: Demographic Yearbook. 1984, 1987, and Lockheed and Verspoor 1989.

Table 7. Growth of 6-11 years old Students Enrolled in Primary School and of Population 6-11 between 1980 and 2000

Country	Enrolled		Annual	Projected	6-11 yrs old children			Out of Sch.
	1980	1985	Growth	2000	1980	1985	2000	2000
Argentina	3046	3545	0.03	5588	3203	3722	3994	
Bolivia	777	875	0.02	1250	897	1037	1395	145
Brazil	12858	14187	0.02	19056	17564	19087	22617	3561
Chile	1348	1287	-0.01	1120	1505	1450	1496	376
Colombia	3197	3104	-0.01	2841	3909	4087	4555	1714
Costa Rica	297	313	0.01	366	333	373	429	63
Cuba	1323	967	-0.06	378	1355	1032	1141	763
Dom. Republic	785	866	0.02	1163	946	975	1194	31
Ecuador	1191	1299	0.02	1685	1356	1490	1977	292
El Salvador	517	519	0.00	525	796	869	981	456
Guatemala	581	737	0.05	1504	1176	1379	1806	302
Haiti	319	500	0.09	1925	872	914	1103	
Honduras	444	574	0.05	1240	672	765	1121	
Mexico	11767	12816	0.02	16558	12701	12751	15374	
Nicaragua	312	397	0.05	818	494	571	782	
Panama	281	287	0.00	306	318	324	325	19
Paraguay	400	446	0.02	618	509	570	817	199
Peru	2399	2955	0.04	5523	2774	3032	3391	
Uruguay	258	294	0.03	435	311	323	328	
Venezuela	2014	2277	0.02	3291	2360	2622	3289	

Derived from: Lockheed and Verspoor. 1989, Statistical Appendix
Growth rates derived as compound growth rates.

Table 8. Percentages of Repeaters in Primary Education in Latin America - 1975-1985

Country Population	Percentage of Repeaters 1975	 1980	 1985
Argentina	8.70		
Bolivia			
Brazil	15.20	20.20	19.70
Chile	12.50		
Colombia	15.40		17.00
Costa Rica	6.50	7.90	10.60
Cuba	8.10	5.70	3.20
Dominican Rep.		18.00	12.80
Ecuador	11.40	9.70	8.60
El Salvador	7.50	8.80	8.40
Guatemala	14.80	15.00	13.10
Haiti		20.90	9.50
Honduras		16.20	15.50
Mexico	11.00	9.80	9.90
Nicaragua	13.70	16.90	15.40
Panama	12.60	12.70	13.10
Paraguay	15.30	13.60	10.60
Peru	10.20	18.80	14.10
Uruguay	14.00	12.40	11.30
Venezuela	2.70	9.80	9.40

Derived from: Lockheed and Verspoor. 1989. Statistical Appendix

Table 9. Primary Students Enrolled in Private Schools

Country	Enrolment in Private Schools			Average Annual (Percent) Growth		
	1875	1980	1985	1975-80	1980-85	1975-85
Argentina	17.30	17.80	18.60	0.57	0.88	0.73
Bolivia	8.80		7.70			-1.33
Brazil	12.90	12.80	12.10	-0.16	-1.12	-0.64
Chile	18.30	20.20	31.80	2.00	9.50	5.68
Colombia	15.20	14.50	13.50	-0.94	-1.42	-1.18
Costa Rica	3.70	2.60	3.50	-6.81	6.13	-0.55
Cuba	0.00	0.00	0.00			
Dominican Rep.	12.20	17.80	24.10	7.85	6.25	7.04
Ecuador	16.90	15.90		-1.21		
El Salvador	6.60	7.20	8.10	1.76	2.38	2.07
Guatemala	13.60	14.20	13.70	0.87	-0.71	0.07
Haiti	42.50	56.80	58.50	5.97	0.59	3.25
Honduras	5.20	5.30	5.10	0.38	-0.77	-0.19
Mexico	6.00	4.90	5.00	-3.97	0.40	-1.81
Nicaragua	13.30	11.80	13.30	-2.36	2.42	0.00
Panama	5.00	6.30	7.50	4.73	3.55	4.14
Paraguay			13.70			
Peru	12.90	13.10	14.40	0.31	1.91	1.11
Uruguay	17.20	16.40	15.40	-0.95	-1.25	-1.10
Venezuela	11.10	11.10	11.50	0.00	0.71	0.35

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The State Socialist Model of Higher Education: An Assessment

Pál Tamás

Fundamental issues have dominated university policy debate in Eastern Europe in recent years. They involve theories and practices of the crisis, and the eventual fall, of state socialism as a social formation. New programmes of intellectual training as well as related declarations of a new meritocratic order have been part of this model since its very beginning. This necessitates an examination and assessment of the system's fundamental paradigms in terms of its policies *vis-à-vis* the universities and the intelligentsia.

At least since the late '50s, East European university policy-making bodies have faced challenges posed by the industrial societies in terms of the needs for training and supply of professionals. Strategies of meeting these challenges have been borrowed, no doubt, from Western countries - with modifications made necessary by the local political conditions of power. The efficacy of Western policies has been partly questioned even in their original context. Thus, their re-interpretation has become unavoidable in the former state socialist environment as well.

The debates had unfolded on two levels. The first one remained restricted to policy decisions regarding higher education and continues to be largely hidden except for a narrow circle of policy professionals and economic analysts. First and foremost, it has been centered on issues of employment and the need for qualified labour. Of course, extensive economic planning and managerial bureaucracies have been able to make room for this approach, too.

At about the same time, there emerged another debate - organically rooted in East European traditions - concerning the position, role, social utility of the functioning of the intelligentsia. The polemic about the intelligentsia was positioned in the power space of political values and rather visible interests - with a focus on historical and ideological elements.

The principles and considerations of educational planning have not been built into the politicized treatment of the topic. By the mid-'80s then largely as a result of international research trends, a third intermediate line of argument has also surfaced. In this period, educational policy-making transcended the limits of the instrumental approach while a new approach exited the debates which had become, in the meantime, subject to macro political confrontations. While this new approach continued to carry some political weight, it also turned with increasing interest to the concrete conditions of the educational system.

New questions of a profound nature have been asked. What should a good educational system be like given the current social environment? To what extent does the educational system depend on the social environment and to what extent is it determined by its own internal structure during reform processes? What are the consequences generated by social reforms in the realm of education and, in particular, higher education? Is there a difference in the higher educational system of primary (i.e. technology-generating) and secondary (i.e. technology-utilizing) industrial societies? What is the desirable proportion of national specificities in (higher) education in an era of increasing economic globalization? Is it possible to locate the cause of the low efficacy of education in the fundamental model of education or is it induced simply by an inept application of an otherwise far from dysfunctional model? More generally: what is the validity of the social and economic indicators that are utilized to measure the successes and failures of higher education? How appropriate is the educational system in realizing those comprehensive and general socio-political goals that it has supposedly been intended to accomplish? How deeply has political intervention in education distorted the cycles of social reproduction? What are the short and long term consequences of extending social mobilizations to education in the '50s and '60s?

Today, East European debates are saturated by emotions and macro political programmes. Not quite unusual during revolutionary times, passions are superseding analysis. An analysis of these emotions to reveal the public polarization of values underlying these, seemingly free-swinging, debates would be a useful knowledge-sociological endeavour. That is, however, not the subject of this paper. Instead, it will sketch an assessment of higher education in a narrower, and more technical, sense.

Towards a Systemic Model

The state socialist model of the university was created in Eastern Europe. An important characteristic of that region's universities had been the emulation of various versions of the German pattern.[1] It is also of some importance, and follows from region-specific traditions, that almost all universities had been, and continued to be, state institutions. Their faculty members have been civil servants, practically ever since the formation of modern states in the region. Although certain forms of university autonomy are known,[2] important social movements have never questioned the state's fundamental privilege to run, and to exercise political control over the university system. Although the post-revolutionary state socialist model distanced itself from the German principles of organizing scientific practice and also undertook new social functions, the state's control over higher education has never been relinquished. Quite to the contrary: the net result of the state socialist transition was in fact the reinforcement of state authority over the university.

It is in this matrix of power that the new approach to higher education was devised. The new policies in higher education unambiguously subordinated the traditional primary functions of universities - that is, training and research, - to a comprehensive project aimed at the transformation of society. Having redesigned the images of the professions and the role of transfers of knowledge, this approach gave rise to a new model of the university by conceiving education as the main instrument in the process of social reorganization and a tool for the creation of a new political class. The creation of this project for social transformation implied the transformation of the system of social production and distribution of knowledge. This element played later an important role in providing stability to the new political system. The model was founded on forecasts of demand for skilled labour - supposedly made necessary by expectations of extensive economic growth. In terms of this model, higher education could best be used as the "leading edge" of rapid growth. (This is not to contradict the recognition that the educational system as a whole needed development itself.) This characteristically "Baron Münchausen" style of addressing the social role of the intelligentsia implies the detachment of higher education from other levels of specialized education. As a result, the system of higher education experience a dramatic expansion in terms of the number of people involved in it.

In the '60's and '70's, the reform processes evolving from the knowledge industries of industrial societies manifested a delay in Eastern Europe. At first, the immediate higher educational sphere remained relatively intact but soon significant reform processes unfolded in science policies and at the lower levels of the educational system. These spread later over to the outer circles of higher education and resulted in the introduction of organisational forms aimed to satisfy the new quantitative needs. These years have been characterized by a special form of neo-conservatism in the main body of higher education proper. The system had not yet fully recovered from the "late Stalinism" of the 1940's and 1950's, which has severely broken the traditional immanent values of higher education. As the new reforms suggested the state's new and ambitious political approach to higher education, university elites anticipated reform programmes with a certain mistrust. Finally, for its part, the educational administration was also interested in reconciliation: with symbolic support from the intellectual elite being an important political asset, the state strived to avoid open confrontation as much as possible. Hence, instead of redesigning the existing structure, it was amended with new organisational units.[3]

Thus, reform steps have been taken with a certain indecision and hardly in a systematic fashion. From the late 1970 onwards, changes have spread across East European higher education as a whole. The new approach was functional in the sense that it stood for organic continuity with some original elements of the state socialist model. At the same time, it appeared to sacrifice another basic value of the model: meritocratic ambitions. (That these efforts failed in the end and that meritocratic considerations have continued to exert some - *albeit* distorted - influence, is a completely different issue.)

The differentiation of specialized training comes into the focus of the organisational changes arising from the new approach as well. Students are, again, sequestered - in terms of the amount of knowledge communicated to them as well as the length of their studies - on the basis of an anticipated image of the professional tasks they are to perform. It is in this vein that dual level training in a whole series of technological and economic fields was introduced in Hungary. In East Germany, too, three- and five-year cycles - the so-called "scientific" versus "applied" fields - have been separated in technological and business studies according to the needs for scientific knowledge required by future jobs.

Even as far away as China, pre-existing two-year post-secondary training has been built into the general order of higher education at the university or at the new and specialized technological colleges. A unique three-tier educational system has been introduced in Yugoslavia where some kind of diploma is offered, at least theoretically, at all levels. This means that the tiers built upon each other, each also have final products. Similarly, the Bulgarian model, under construction at the time, consists of three levels. The first 4 - 5 years serves the training of practical specialists. This is followed by the second tier which produces, after 1 to 2 years of additional studies, design-development-research professionals whose job is seen as requiring a certain amount of creativity. The third level is explicitly devoted to the training of scientists. These three steps are supplemented at the bottom by a 2 to 3 year-school integrated into the system of higher education which trains specialists with middle-level education. No data are available whereby to judge the degree to which this approach has been actually introduced. Nor is there any information on its efficacy.

The period between 1960 and 1985 shows two clearly marked states in the development of enrollment. Until the mid-'70s, student enrollments had been strongly increasing everywhere. The annual mean increase between 1960 and 1985 was 22.1% in Hungary, 12.8% in Bulgaria, 16.4% in Romania, 10.9% in Czechoslovakia, and 10.4% in Poland. Enrollment in the East German higher education has increased a bit less steeply (by an annual 2.4%). It had reached 5.5% by the late '60s. Around late 1970, the growth of enrollments in higher education came to a full stop. Certain systems registered a temporary drop. The early '80s marked either a crisis of the system or the general drop within the system - indicated, at any rate, by decreasing enrollments. (Between 1980 and 1985, the rate of change was -3% in Romania and Czechoslovakia, -5.7% in Poland and -.4% in Hungary.) It was during this period that the educational attainment differential between the East and the West escalated dramatically.

Statistics covering the skill structure of training during this period indicate that the similarity between the Western and Eastern models is greater than assumed. Enrollments at technical and scientific specialization fields at the universities, however, continued to grow; while in other developed industrial societies, engineering enrollments do not reach even the 20% mark. They are as high as one-third of the total number of students in the state socialist countries. The picture is the reverse in the sciences which involve a good part of the students in the "Western" system. As a result of the decrease in the contingents of students, diploma output also started to decline during the early '80s. (Between 1980 and 1985, they went from 20,000 to 16,000 in Bulgaria; 27,000 to 15,000 in Hungary, and from 84,000 to 64,000 in the severely crisis-stricken Poland.) Notwithstanding all programmes proclaiming the opposite, the percentages of engineering students remained fairly high, and constant during the '80s. In 1985, engineers comprised, among all university graduates, 42.3% in Czechoslovakia, 32.9% in Bulgaria, 28.8% in the German Democratic Republic, 22.3% in Hungary and 24.4% in Poland.) It should be noted, however, that in comparison to earlier periods, these figures actually indicate a decline in the relative weight of engineering in higher education.[4]

The second largest group in the output of professionals in the East European systems is that of teachers. They make up about 20% of the total of those graduating in higher education. In Hungary, with the inclusion of those graduating from various training institutions with shorter cycles - such as kindergarten and early elementary school teachers - this figure reaches as much as 40%. Economics and business training became massive during the '70s. Even with this increase, the number of those with degrees in economics and business has remained too low compared to social demand. To be noted also is that a large part of these students had acquired diplomas through various part-time programmes followed during full-time employment.[5]

East European expenditures on education had increased rapidly during this period. Yet it is only during the 1970s that they actually surpassed 5% of the total GNP.[6] There is no correlation between the total educational expenditures and expenditures devoted specifically to higher education. The amount of financial resources allocated to the various sectors of the educational system and the priorities of the system vary according to the development programmes launched in the particular countries and the nature of social tensions they had to deal with.

During the 1980s, higher education has become a source of tension as part, as well as, parcel of the general crisis of the system. Although increasing criticism is levelled against the structure of higher education itself, the situation has been dramatized by social problems primarily outside the realm of the educational system. Faltering economic development along with crises of mistrust between the political system and the incoming new generations has slowed down, and eventually halted, the social integration of the new generations of the intelligentsia. An ever greater part of students and young intellectuals has remained outside the nearly collapsing "social contract" which has, nevertheless, achieved a certain acceptance through resignation and coercion. Although the unfolding revolt of the intelligentsia which varied country-to-country, has contributed enormously to the collapse of the state socialist political systems.

The politicisation of the conflict between young intellectuals and the system had important bearings on policy-making concerning higher education. Universities did recognise the proliferation of problems but partly stalled by financial difficulties caused by a faltering economy, partly on the basis of the realization that higher education had become a field of intergenerational conflicts with macro-political impact - reform steps have failed to materialize at the universities.[7] The only comprehensive experiment of the period has been the Soviet reform approach to higher education announced in connection with the launching of *perestroika* in 1987. Far from a bold plan of attack, it clearly fell short of addressing deep structural changes. Moreover, it has in fact never been introduced in a fully comprehensive manner, social transformations left the reforms far behind. In addition, under harsh dictatorship, student movements tended to transcend astutely the sphere of university problems and, skipping the phase "self-government", immediately formulated macro political and societal demands. This explains why higher education, one of the earliest terrains of social tension, has made its transition to the post-socialist era without either ambitious reforms or intellectual/social explosions.

All this has been further confused by the fact that, for two decades under benign dictatorships as well as during the first period of Soviet reforms, academic elites have been given important roles in the transformation of the internal structures of the universities and the (re)allocation of managerial positions. Thus, academicians had been converted into a particular elite, a kind of courtier intelligentsia. Although the courtier role of this group has been largely eroded in the process of the recent transformation, academicians continue to possess greater socio-economic security than other groups of the elite, thanks to university autonomy. It is the self-protective anti-reform practices of the academic elite that lay behind the increasing demands for university autonomy. Substantive elements of new higher educational reforms will have to manifest themselves in this arena of power.

Undereducation vs. Overeducation

The issue of under- versus overeducation is a perennial East European debate about the intelligentsia and university policies. This problem is, again, one that is not restricted to the state socialist model. It emerges in every society where the university system is mechanically linked to the labour market by guaranteed employment for graduates, that is, in all planned educational systems.

On the other hand, it is an unavoidable consequence of the model insofar as education is subordinated to the major aim of transforming society. As a result of these two separate points, the dispute has taken place on two distinct (macro and micro) levels. Comprehensive questions have been posed: Does society have a sufficient number of specialists in this or that field? Rephrased more broadly, is there an adequate "stock" of intellectuals to address unexpected problems? All this is reflected on the micro level as a problem of planning individual life career. Does the person in question possess sufficient competence - provided in organized forms through education - to perform a given function? Is his competence insufficient or too ample for the tasks to be accomplished?

The micro-level dispute goes back to at least one and a half decade. The frustration of the intelligentsia with their environment has been expressed in the complaint: "I am poorly utilized because I know too much more than I actually need". The macro-level debate, on the other hand, operates in more superficial terms and on the basis of a lack of information.

In addressing the macro approach, it is useful to start out by placing a few question marks around the close-circuited economic considerations that characterize the international planning literature. Representatives of those schools of thought which focus primarily on the developing countries' tend to label previous planning practices - leading to an inflation of the number of intellectuals - as misguided and dysfunctional when judged in terms of the needs posed by economic development. According to this school, the intellectual is a "perishable good". He/she needs utilization immediately after finishing his/her career: fresh graduates ought to transform their competence into immediate action. If, for any reason, new graduates cannot realize their knowledge potential, then soon, the whole package of knowledge is lost (or at least starts decomposing). In this concept, the end product of higher education is not a set of world views and skills but concrete knowledge.

Moreover, this school stresses the importance of putting knowledge directly into use, whenever possible. Since both in the developing world and the countries of state socialism, enrollments have increased faster than the respective societies' capacity to utilize the graduates, representatives of this approach conclude that the training of intellectuals itself is "overdeveloped".

This line of thought perceives the issue of overeducation as a relatively new problem and derives it from unbalanced economic planning and development strategies of the post-war era.

I will argue, in contrast, that overeducation (to the extent that this conceptualization carries any meaning at all) is a phenomenon that has been known much earlier - at least in Eastern Europe - than suggested in economic literature. Rather than conceived as an anomaly, it should be seen as one of the most important preconditions for the region's future development. Growth cycles of the educational system do not necessarily coincide with economic cycles. Thus, "under-" and "overeducation" are persistent phenomena of any social context surrounding the educational system: the number of specialists for any given task is either greater or smaller than demand. Thus, interest in any particular profession or area of specialization will be determined by the shifts between cycles. This aspect of the problem is, of course, a common-sensical observation. It is probably interesting only from the viewpoint of the history of the sociology of education. Expanding and contracting systems have different recruitment bases. There are social strata that wish to be involved in higher education only during the short periods of overlap between two cycles. On the other hand, there are those whose ambitions concerning schooling are not cyclical.

It is easier to establish a good university than to run an internationally more competitive branch of industry. Consequently, "overeducation" has been an integral part of social policies in Eastern Europe well before the development of the state socialist model. This has made a lasting impact on the region's intellectual climate. Some of the traditional outcomes of this have been the intellectuals' revolt, emigration and - in a much wider circle - collective frustration. The intelligentsia in search of its place in society has become critic and later, initiator of transformation of its social environment.

This raises the following question: Is it not possible that the traditional perception of the role of the intelligentsia in the region as an active player of history is a corollary of the "dysfunctionality of overeducation"? And, on the reverse, is it not the case that great leaps forward - or planned changes - that transcend the scope of the economics of education can only be initiated via overeducation? The strong semi-peripheral state develops its intelligentsia as "courtier intellectuals for the service of the center or, at least, to function according to priorities set by the center. If this group behaves in a functional manner then the system is stabilized and intellectuals will refrain from asking fundamental questions concerning the workings of the social order as a whole.

Consequently, if changes are to take place, it is desirable that there be an increase in the number of intellectuals who are not able to find their professional place and are "appropriately" frustrated. In sharp contrast to groups of satisfied, successful and well-positioned intellectuals, it is the circle of the dissatisfied and misplaced that will be more inclined to ask overriding and essential questions concerning their environment. Thus, the intelligentsia does become a political actor - *albeit* not quite the way the state would have planned it. Although it is true that only a small fraction of those dissatisfied become rebels, it is difficult to imagine the emergence of qualitatively new social groups in any other fashion.

The intelligentsia did not initiate the recent explosive changes in Eastern Europe. (Those were implied by the intrinsic logic of the system and the *Pax Sovietica*, even if the direction has not been quite identical with Moscow's intentions when it set the transformations in motion.) The intelligentsia, created as it was through overeducation, however, has played a major role in determining the concrete style of the transitions. Frustrations experienced in the micro level, of course, make the lives of individuals and smaller groups very difficult. I do argue, however, that the macro level "advantages", springing from overeducation, set the change process in motion. In this social context, it is impossible to imagine how a revolution - something that necessarily emerges from the failure of a large number of individual evolutionary steps - could be achieved without it.

In addition, it has become increasingly clear that, for semi-peripheral societies, workshops of knowledge-production tend to have a better opportunity of being integrated in the international system than those of material production. Those centres of research and development whose inventions could have been mediated in the form of end products to international markets by Hungarian or Polish industrial companies with incredibly poor efficiency only, have a better chance through direct connections. The R&D sector, including university research, has the opportunity to become one of the most direct export branches. This demonstrates again that, its revolution-producing effects aside, overeducation can be converted into direct economic profits in the era of global information.

In the summary, it is my sense that overeducation is an integral part of not only pre-socialist and state socialist, but also post-socialist, university policy considerations.

The educational system has played a triple role in the state socialist model. First, it has ensured the selection and training of new social elites. Other educational models perform this function as well. They can, however, use specific procedures of selection, closed systems of entrance examinations, high tuition fees, and specific languages of examination to choose with high reliability on those who are to be admitted to the elite institutions. The state socialist model is somewhat reticent in this respect. Because of its pro-equality ideology of legitimation, it could not overtly use the educational system for the selection of elites. Moreover, the financial resources that it has been able to allocate to back up the large numbers of its faculty and students is rather limited because of the region's economic underdevelopment. Hence, even those institutions are unable to keep up the professional levels necessary for the training of elites which had been expressly designated for that very purpose. Consequently, elite education warrants specific institutional arrangements.

The Soviet model of the 1920s - whereby massive, new social elites were to be created in an extremely short time - included biased admission examinations. For the groups seen as actually or potentially inimical to the system, (i.e., the members of the former exploiting classes, the bourgeoisie, etc.) this method blocked opportunity of access. Entrance examinations existed but their importance was secondary. What mattered was the opinion of the political organisations which nominated the students. Since the years 1926-27 onwards, candidates have been filing their applications themselves and are no longer simple delegates of party or trade union organisations. Yet political considerations of selection continued to carry weight in state socialist educational policies, with varying intensity and in various forms, until the late '70s and even in some cases, until as late as the great turn-around in 1988-1990. As a result also of large enrollments, certain elite programmes and universities by necessity became distinguished in this process.

Two further techniques have spread over and beyond those mentioned above. Firstly, the initial employment of fresh graduates has been restricted through output regulation and by frequent reference to manpower planning.[9] It is not coincidental that in state-regulated market of new graduates, the political sphere exercises great discretionary power over the selection of individuals on the basis of any kind of merit. Secondly, as the elite of the state socialist model has been, doubtless, politically constituted (all other considerations being secondary), institutions providing ideological-political education have been given specific roles. They serve not only the cognitive control of the public sphere and the ideological synchronization of all actors, but are also assigned decisive roles in the selection of would-be elites.[10] Both techniques distant the appointment of the elites in this allegedly egalitarian society outside the normal educational system. This further increased the confusion of selection.

The definition of the function of specialized training is fairly ambiguous. Actually this is the case of a policy oriented towards economic development. Although there have short periods (such as the early 1920s in the Soviet Union and the periods of restoration following the big revolts that had broken the back of East European regimes in 1956, 1968 or 1981) wherein this function had been overshadowed by political considerations, yet it has always determined the institutional materialization of the higher education model. Although with varying intensity from period to period, it sets out a model of "ready-made" specialized professionals. Since the very beginnings, it has used a hypothetical image of the specialist who, with a minimum amount of difficulty, is immediately employable in the labour market. Such a conceptualization has repercussions and is elaborated in the course plans.

The period under study has seen repeatedly revitalized debates about the desirable degree of specialization. In the more dramatic periods of social transformation, when professional careers become difficult to predict in the short run, the programmes of general training gains currency. At such times, educational policy makers consider wider horizons, the ability to adopt change, basic education and a consistent world view, along with disciplinary knowledge in the basic sciences, to be fundamental parts of a model of professions. During other, quieter periods - especially during dynamic periods of industrial development when it appears that there is a sudden need for more specialists - followers of accelerated training programmes, specialized skills and ready-to-go professional models are likely to have the upper hand. At such times, there is more talk about short cycles and the general reduction of time allotted to basic education.[11]

A Brief Assessment

All of the above notwithstanding, providing apologetic support for the fundamental meritocratic ideology of state socialism is an intrinsic function of the educational system.[12] Though all three of the above functions work simultaneously, one or another of their features tends to gain dominance as a result of the cyclical dynamics outlined above. Meanwhile, fundamental elements of the state socialist policies of higher education have been surprisingly stable (despite apparent variation by countries and periods). The following are those characteristics which seem to be repeatedly present:

(a) Instead of an individual right or a service open and available to everybody, higher education is a prime instrument of power reproduction. Control over access to it is subject to the central power.

(b) Key elements of this control are as follows:

(1) State oversight of the complex and variegated criteria, including professional ones, which are used for the selection of those to have access.

(2) Substantive control of educational programmes and curricula. Over and beyond professional elements, ideological control takes place at this point as well. The construction and compulsory inclusion of specific ideological packages within the curricula has paradoxically a de-ideologizing effect on the contents of professional courses. In addition, it carries some symbolic value as well.

(3) In critical, particularly conflict-ridden stages, the state takes direct control over the selection of faculty members.[13]

(c) Short-circuiting system of higher education with the labour market implies the separation or suppression of research.

(d) A certain political strategy is also reflected in international relations of higher education. Points (b) and (c) imply a basic model of autarchy. (During recent post-state socialist transformation, this immanent specificity has been abolished only partially. It will take some more time before it could be abolished completely after the fall of the state socialist model.)

Since its beginnings, the East European model of higher education has included such forms of training which grant much greater role to non-traditional access directly from the work place (or part-time-part-work arrangements leading to the achievement of full diplomas) in contrast to traditional university systems. These organisational arrangements have played different roles during various phases of state socialist university policies. Knowledge is a source of power. Pre-revolutionary orders of power have excluded a broad segment of society from organized access to knowledge, especially scientific knowledge. Revolutionary changes imply, on the other hand, replacements of elites. These new elites, with few exceptions, have been trained in higher education. Consequently, it is necessary to ensure the inclusion of such groups - workers and peasants, or those called as such - that had previously been excluded from higher education. This is done, instead on an individual basis, by collective compensation and programmes aimed at creating a new elite faithful to the new system.

This period indicates another political dilemma wrapped in educational cover. The frontal takeover of universities and the construction of normal organisational autonomy is a very slow process. As faculty is reluctant to yield to ideological pressures, new ideological values have to be introduced in different ways, typically bypassing the faculty. The most obvious method to achieve this is by making use of ideologically committed students. During these years, the simplest solution has not been partial training but the inclusion of politically trustworthy persons among the full time students by skipping university preparation but even secondary schooling. The classic pattern of this model is the Soviet worker-preparatory school (*rabfak*) of the '20s. Although part-time night and correspondence training had already existed at this time, they only served as complementary to the above. The second phase saw a change in proportions. The "rabfak" type of preparatory training was decomposed while night training and correspondence courses survived and even expanded.

The policy mentioned above is a mixture of two organisational philosophies. First, it exposes a programme aimed to level inequalities of access not on a collective but, importantly, on an individual basis. It is no more a particular historical class that must be granted justice by getting access to the universities. Instead, opportunity must be granted to those who have not been able to afford the costs of full-time education and thus missed opportunities of advancement. This policy opens an additional channel of individual mobility for those who for some reason have passed the point switches between educational levels. Also the great leaps forward of ambitious industrial development projects require sudden inputs of large numbers of specialists: jobs for industrial specialists, as well as those holding teaching positions in the expanding educational system. Traditional full-time higher education is unable to meet this demand. As a makeshift solution, night and correspondence education could be considered to fill the vacuum. Moreover, this solution made it possible to obtain new "product", i.e., fresh graduates, without additional investment (in new faculty, laboratories or dorms). Although it has never been openly admitted, this policy emulates the pattern of "intensification programmes", the hegemonic ideology of industrial policies of the period.

Notwithstanding the critique, part-time and correspondence education obtained new functions during the third period. First of all, these forms have sprung up as prompt organisational responses to new training needs. High technologies, modern management methods and even additional commercial and social scientific learning have reached specialists through part-time education.

It is at this point new dilemmas of educational planning appear. To what extent should these forms of training be treated as part of higher education? A large number of institutions performing management training, foreign language education and professional re-training have been typically excluded from East-European university systems. It is conceivable that a new generation of university reforms will being in closer connection with higher education. These reforms will have to overcome simultaneously both structural and technical problems. Limits to the efficacy of this model of higher education will have to be re-formulated by reacting to the crisis of the 1980s. In other words, after the (partial) retraction of the isolation of the societies of Eastern Europe, when the cost-benefit functions of the workings of the system are also redefined, some fundamental questions, which have not been asked since the 1920s or the 1940s, are to be posed again: What educational system should serve equality of opportunity and economic efficiency at the same time?

Escalating problems related to the social background of students must be solved within this frame of interpretation: interest in higher education has been steeply declining among the offspring of the non-intellectual strata. Hence, the intellectual sphere of Eastern Europe as a whole is increasingly deprived of potential talents. We must find ways to include various forms of post-secondary, non-university training in the educational system. Furthermore, it is at this point that the problem of part-time night and correspondence training is revealed. Finally, non-trivial solutions will have to be found for the unification of research currently outside the universities with the system of higher education.

NOTES

1. It is worth remembering that 19th century German universities appear to have served as arch models to organize the industrial world's scientific establishment and the universities. It has been well documented that German forms had inspired American research universities (e.g., Johns Hopkins, Chicago). The same influence can be traced in the patterns of the East European universities and higher educational reforms during the 19th century. Consider the German influence on Moscow University after 1830, the intermediate role of Tartu University between German science and the Russian universities, the ties of the late 19th century Bulgarian higher education with Leipzig and, of course, the manifold interconnectedness of the universities of the Hapsburg Monarchy with German higher education (e.g., the institution of the *Privatdosent*, the emulation of the Zürich pattern in the technical universities, etc.)

2. The scientific elites have been keen on announcing these especially during times of the reduction of central power. However, they could be maintained, even during the most civilized periods, only in contradictory and limited modes. General increases in central state power have always rebuffed efforts aimed at increasing university as well. So after the February 1917 revolution, for instance, Russian higher education supported demands for greater university autonomy. The newly declared academic freedoms were attacked by the new Bolshevik powers as early as the beginning of 1918, only to be finally abolished with the 1922 University Code. Central East European educaltional policies have had a very similarcontent after 1948-49. During periods of "reforms" (i.e. 1956-59 in Poland and in the late 1960s and early 1970s in Hungary), however, the programme of complete controls was somewhat relaxed and a certain form of autonomy was granted to the university elites.

3. This is, of course, far from being an East European specificity. Universities are widely seen, on the whole, as almost unreformable. Or, at least, the efforts required for their transformation are not commensurate with the anticipated increases in the efficacy of the organisations emerging after the reforms. Hence, this approach does not propose to create a new and better organisation by breaking the back of existing autonomies of various sorts. It creates instead new organizations to supplement the old ones. Traditional role structures and the entailed intellectual properties do not need to be taken into account any more. The new institutional types created in this way pose a kind of challenge to the old organisations as well. They respond by transforming themselves so that, finally, a new and comprehensive fully dynamic higher educational system is produced. Along with other especially economic considerations, this reform model has played an important part in the formation of short cycle training in Western Europe as well. Its effect mechanism has been very similar to the construction of abbreviated technological training in Eastern Europe, too.

4. The maximum relative weight of engineering in higher education by countries (and years) is as follows: 43.2% in Czechoslovakia (1984), 33.4% in the German Democratic Republic (1975), 36.1% in Poland (1960) and 40.4% in Bulgaria (1980).

5. In 1985, the percentage of non-full time economics and business students was 23% in the German Democratic Republic, 36% in Czechoslovakia, and 34% in Bulgaria.

6. Between 1970 and 1985, educational expenditures grew 2.1 times in the German Democratic Republic, 5.7 times in Hungary, 3.6 times in Bulgaria and 2.1 times in Czechoslovakia. The dynamics of change in expenditures on higher education has been slightly different: the same period registered an increase of 1.6 times in the German Democratic Republic, 3.2 times in Hungary, 2.2 times in Bulgaria and 1.2 times in Czechoslovakia.

7. The behaviour of the political elite is different under benevolent dictatorships - such as in Hungary or Poland - and in harsh dictatorships - such as Czechoslovakia or the German Democratic Republic. Note, however, that the ancient regimes of the 1980s have failed to produce possible university reforms under both types of dictatorships. The steps, or rather the absence thereof, have been obviously determined by concrete local conditions. It may have been an important consideration, however, that not steps should be taken even from obviously functionalistic reasons as those could have violated very sensitive political balances of interests which are difficult to handle politically. There have been anxieties to the effect that any university reform could set in motion a whole series of political actions by intellectuals, which may prove hard to contain.

8. For a summary, see Blaug, 1989.

9. German university statistics from the 19th century are especially interesting in this regard. See Laitko, 1989.

10. At the time of the formulation of the model, the "forced allocation" of first post-graduate employment was fully comprehensive. Later, under the benevolent dictatorships of the 1970s, this practice was modified and eventually abandoned. Note that all the reforms notwithstanding, this practice still exists in the Soviet Union. Official statements explain the survival of this coerced labour practice by economic considerations: education is free and the state invests significant capital in students. Understandably, it strives to optimize the valorization of this capital for at least a few years after graduation.

11. Soviet institutions have played a special role in these terms in the order of the *Pax Sovietica*. In order to be included in the elites of the party apparatus, the foreign services and the upper echelon of the military, specialized educational attainment or at least some training in the Soviet Union was almost indispensable. (Such training institutions included the Moscow-based Social Sciences Academy of the Communist Party of the Soviet Union for the party apparatus, the Diplomats' College for diplomats, along with several specialized military schools.)

12. From the formulation of the prototype of the specialized professional in the first 5-year plans onwards, the Soviet model has implied very rigid specialization beginning at a very early stage of training - at times as early as the second or third year.

13. Some of the later conflicts were prefigured by the classic 1928 scandal of Soviet policies regarding technological education. The Peoples' Commissariat for Education, in charge of overseeing education, focused primarily on political issues and decreased the length of engineering training to three years. However, the ministries that employ specialists rebelled as the new graduates released were completely unqualified to perform professional tasks. Finally, higher education in the technological fields was removed from the supervision of the public education authority, broken up and handed over to the industries that employ their graduates. The industries were enthusiastic. They pumped substantial capital into its infrastructure so that the equipment and laboratory apparatus of the technological universities was improved to the fullest extent possible at the time. A large number of leading industrial specialists were drawn into education and the previous length of training was restored. These elements were very important in terms of practical training. Consequently, the universality of higher education was destroyed in these institutions. The institutions of higher learning in the light industry, food, or the airplane industry ended up teaching special branches of the sciences and training narrowly focused experts. Between the early '60s through the late '70s, this model came to be the fashion in a whole series of East European countries and, albeit under miscellaneous organisational arrangements, it became a definitive element of the Hungarian, East German, Bulgarian and Polish reform steps in higher education in the technological and economic fields.

14. It would require a whole different study to outline the history of the way how state power repeatedly pointed to education as a terrain of the relatively optimal redistribution of merit and equality. Soon critics of the system started attacking this aspect. In this area as well as in other fields, there is a serious gap between "*Dichtung und Wahrheit*" thus opening up a very clear point of attack for the enemies of the system. To this, the system responds by partial reforms and by backing off from its own previous promises. Reforms mean compromises - and those are not appreciated by any of the parties involved. New assaults are delivered from even more angles. Meanwhile, partly as a result of the cyclical dynamics of political life, pro-egalitarians gain strength and produce new, strongly egalitarian educational policy measures. In turn, this decreases the efficacy of the system of the transmission of knowledge. In response, criticism is aimed at this feature. This is, again, followed by compromised reform solutions. Multi-faceted dissatisfaction is spreading. In the meantime, partisans of efficiency come to dominate macro politics and the whole cycle is started again.

15. Of the functions of higher education, the state considers research less politically sensitive than teaching. For in the case of the former, the state has control over publishing channels, so that alternative propositions from the realm of science could reach a broader audience only with the state's permission. It is, however, impossible to place a commissar in every university lecture or laboratory. Moreover, students, (the young people) are seen as especially gullible to subversive ideas. Hence, dissident university faculty members - that is those not to be punished more severely - have often been forbidden to give lectures (supposedly preventing their contacts with the youth) but permitted to work as researchers.

Table 1. Higher Education Development Trends, USSR (1914-1985)

Academic Year	Higher educational institutions	Enrollments (thousands)	Faculty (thousands)	Enrolment per 10,000 inhabitants
1914 - 1915	105	127.4	-	-
1927 - 1928	148	168.5	-	-
1940 - 1941	817	811.7	-	-
1950 - 1951	880	1.247.4	75.0	69
1960 - 1961	739	2.396.1	129.0	111
1970 - 1971	805	4.580.6	279.0	188
1975 - 1976	856	4.854.0	319.0	190
1980 - 1981	883	5.235.0	365.0	196
1984 - 1985	892	5.280.0	377.0	191

Source: Stat. Esegodnik SEV, 1985.

Table 2. Higher Education Development Trends, Bulgaria (1939-1985)

Academic Year of Matriculation	Higher Educational Institutions	Enrollments (thousands)	Faculty (thousands)	Enrolment per 10,000 inhabitants
1939 - 1940	5	10,000	450	-
1944 - 1945	7	26.412	-	-
1950 - 1951	12	30.927	2.000	42
1955 - 1956	12	36.302	-	-
1960 - 1961	26	55.000	3.200	70
1965 - 1966	29	90.200	-	-
1970 - 1971	27	91.600	5.500	108
1975 - 1976	27	111.000	9.700	127
1980 - 1981	31	87.200	10.700	98
1984 - 1985	33	94.300	11.700	105

Source: Stat. Esegodnik SEV, 1985.

Table 3. Higher Education Trends - Poland (1939-1985)

Academic Year of Matriculation	Higher educational institutions	Enrollments	Faculty	Enrolment per 10,000 inhabitants
1939 - 1940	-	49.534	-	-
1945 - 1946	46	55.998	1.000	-
1950 - 1951	83	125.096	14.100	50
1955 - 1956	-	157.465	-	-
1960 - 1961	75	166.00	18.600	-
1965 - 1966	-	251.864	-	-
1970 - 1971	85	331.000	31.300	101
1975 - 1976	89	468.000	48.800	137
1980 - 1981	91	454.000	54.700	127
1984 - 1985	91	350.000	56.600	94

Source: Stat. Esegodnik, SEV, 1985.

Table 4. Higher Education Trends - Romania (1938-1945)

Academic Year of Matriculation	Higher Educational Institutions	Enrollments	Faculty	Enrolment per 10,000 citizens
1938 - 1939	16	26.489	2.149	-
1960 - 1961	42	72.000	8.900	39
1970 - 1971	51	152.000	13.425	75
1975 - 1976	42	165.000	14.100	77
1980 - 1981	44	193.000	14.600	87
1984 - 1985	44	-	13.300	-

Source: Stat. Esegodnik, SEV, 1985.

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Higher Education in Eastern Europe

An approach to comparative analysis

Wolfgang Mitter

1. Introduction: Eastern Europe in transformation

The recent revolutionary changes in Eastern Europe have already left their first impacts on the education systems in general and higher education in particular. It is true that these changes have not yet led to stabilizing measures, let alone comprehensive reforms. Even the legal provisions, in the form of laws, decrees and directives, which have been recently made, give evidence rather of immediate reactions on the collapse of the 'socialist' regimes than of expressly determined goals or perspectives. This appraisal can be exemplified by the contents of the Higher Education Acts which were passed in Czechoslovakia on 3 May 1990 and in Poland on 12 September 1990. Moreover, in a number of cases, recent legal provisions, in the meantime, have become already obsolete as demonstrated by the former USSR President's decree of 15 May 1990 on "the elaboration and adoption of the State programme for the USSR higher education" which should be "completed" (Savel'ev 1992, p. 41).

The actual stage of the transformation process is still, all the more so, hardly discernible as all initiatives and efforts aimed at revising goals, structures and contents of higher education are affected by the crisis on the economic and socio-political scene. In this connection, the foreign observer takes notice of priorities given to overcome elementary hardships concerning subsistence and medical treatment as well as civil unrest, let alone martial actions. The recent initiatives and actions in individual countries, different as they are, signal the departure from the 'socialist past' and the search for alternatives which are oriented to 'democratic' and 'pluralistic' concepts. (cf. Anweiler 1990, Mitter 1992)

Looking for insight into current trends and problems, the foreign observer must not restrict his inquiries to the analysis of legal documents and expert comments, whose publication in journals is frequently overtaken by the reality of actual change. A wider range of sources is provided by programmes and pamphlets which are issued by political parties, professional associations and other social groups; a good number of them are made accessible in the form of brochures or articles in the daily press. Such publications, ephemeral as they often are, are informative in a particular way, as they record supersessions in leading management and administration positions, from ministries all the way to faculties and chairs. They give insight into developments at the 'grassroots' of individual universities and, furthermore, into local working conditions characterized by the lack, if not non-existence of up-to-date textbooks, technical instruments and other learning aids.

Finally, excursions to the countries concerned and talks to visitors from Eastern Europe - not scholars, politicians, administrators, lecturers, but also students and, generally speaking representatives of the 'educationally engaged public' - enrich the access to the oscillating scene which is characteristic of higher education in Eastern Europe today. The present chapter is based upon the evaluation of available sources as has just been outlined. The author is aware of the transitory character of his approach which comes nearer a 'snapshot' than systematized analysis. This restrictive appraisal refers even more to his predictive considerations and postulates.

These introductory remarks should be completed by the author's comment concerning his understanding of 'Eastern Europe' in this chapter with regard to its geographic dimension. Contrary to the German custom the English-medium academic terminology has made a distinction between 'Eastern Europe' and the 'Soviet Union'. This practice is likely to be continued with regard to the Commonwealth of Independent States as opposed to its western neighbours. It is ambivalent, because it points the way to clarity on the one hand, while it includes the risk of confusion on the other.

Excluding the former Soviet Union and her successor from 'Eastern Europe' minimizes the effort to draw 'appropriate' demarcation lines inside this multinational agglomeration which was, even under Stalinist totalitarianism, rather a region than a State, though based upon a common and imperial history of several centuries. Yet, this approach neglects the question of how to identify the 'European' components of that multinational Commonwealth both in socio-cultural and political terms and to define their criteria against what comes into the debate under the category of 'Asian' components.

The term 'Eastern Europe' in its turn, suggests the idea of a homogeneous region which, in fact, has never existed. It is true that the history of the 'socialist period' permitted its application as long as it was constricted to the factors of ideological indoctrination and political uniformity as common features of identification and demarcation against the 'West'. Even under the 'socialist' umbrella, however, it obscured, first of all, the deep boundary line demarcating the 'Catholic' East Central from the 'Orthodox' (and Muslim) Eastern and Southeastern Europe and passing through the contemporary State of Romania and the collapsing Federation of Yugoslavia. In this historical respect, the restitution of the Baltic Republics as independent States has formally restored their 'East Central European' allocation against 'Eastern' Russia.

Furthermore, it is not easy (and is likely to become even less) to define evident criteria for 'East' against 'West Central Europe'. Can one simply allocate Austria to the 'Western' and Czechoslovakia to the 'Eastern' part of Central Europe or even of Europe? The allocation of East Germany (or Germany as a whole) emphasizes the complexity even more.

These tentative reflections on terminological aspects should not be pressed too far in this context. Since higher education, and education *in toto*, is involved in this issue, these introductory remarks are nevertheless justified all the more so as they set the framework of the following comparative approach. At the same time, they should be taken as a permission for using the 'German' frame of reference and, therefore, applying the term 'Eastern European' as a *working* concept, covering both the Commonwealth of Independent States and 'Eastern Europe' (in the English-medium demarcation). This meets the UNESCO practice which has included the whole of the former Soviet Union in its 'East European' sub-region, and of the conference of Security and Cooperation in Europe (CSCE) which has recently given *all* the 'Independent States' of the new 'Commonwealth' the status of full membership.

Eastern Germany will not be dealt with in this chapter. Nonetheless a few marginal remarks seem to be justified. The former German Democratic Republic (GDR) must be regarded as a unique and exceptional case, insofar as the overthrow of her 'socialist' regime has been followed by the reunification with the established and democratic structures of the Western counterpart. Since this process has been constitutionally legalized by the 'accession' of the former GDR to the Federal Republic of Germany, the impacts of this decision on present-day higher education and its prospects differ from those in the other previous 'socialist' States, insofar as these have to cope with their 'post-socialist' challenges on their own.

2. The historical departure

Since the end of the 1940s higher education in most East European countries emulated the Soviet model. In principle this orientation determined its continuity inside the Socialist Bloc. During the same period Yugoslavia developed her own 'socialist' concept built on the principle of self-management. Albania pursued her own course, chosen during the Khrushchev era, until the collapse of the socialist regime. In the 1960s and 1970s Albania's peculiar way was underlined by adjustment to certain policies of the People's Republic of China with special regard to an extreme tie of the training schemes and courses to the needs of 'socialist production'.

However, higher education inside the socialist bloc, i.e., in the region under Soviet hegemony, shared a number of common features which were based upon the following fundamental principles and guidelines (cf. Mitter 1978, pp. 29-38; cf. Hegedüs/V. Kopp/Schmidt, 1982, Novikov 1981).

(1) The place of higher education in the 'socialist society' was entirely defined by its societal function. Therefore, goals, structures and contents of higher education were dominated by the political monopoly and ideological monism of the 'socialist' State. The dovetailing of the authorities for ideological indoctrination and exercise of political power in the central organs of Party and State leadership bound practice and theory to the directives of a State policy which for its part was to be understood as an element of comprehensive societal policy.

In the 'socialist' model of higher education the degree of commitment in policy decisions which, for example, were contained in the official pronouncements of the highest organs of Party and State (Party Congress decisions, etc.) was intrinsically higher than is the case with the corresponding manifestations in Western countries, even when educational policy was framed centrally. This form of political monopoly, given the existence of Federal State structures such as in the Soviet Union and Czechoslovakia (since 1968), entailed if any only slight limits to the centralized governance and control which was, on principle, operated by hierarchically organized bureaucracies and furthermore, supported by dense and impervious security and intelligence networks.

(2) Higher education was considered as the uppermost stage of vocational training. Consequently, the capacities of the sector as a whole and its individual institutions were adjusted to the economic parameters centered in the five-year plans and their subordinate planning arrangements. These overall directives had immediate impacts on the admission policies. The GDR excepted, the applicant had to acquire secondary school graduation (of academic quality) in the form of a 'maturity' certificate and to pass an entrance examination consisting of written and oral tests according to the requirements set by the faculty he/she wanted to be enrolled in.

The exceptional case of the GDR which should not be omitted in this context was given by the status of the Abitur (maturity certificate) as the sole qualification to higher education which, however, did not include the right to enrol in the chosen course of studies. This unique position of the Abitur was, furthermore, underlined by the rigid selection mechanisms concerning the admission to the 'Erweiterte Oberschule' (Extended Secondary School), representing the university-bound track of upper secondary education. The education reform in Yugoslavia of 1974, on the other hand, was aimed at the 'integration' of upper secondary and higher education as a concomitance of the 'professionalising' policy to be dealt with later.

In all the other East European countries the discrepancy between comparatively open admission policies at the university-bound upper secondary education stage and the restrictive selection for higher education was never solved, thus remaining part of the 'socialist heritage' which, in this particular respect, shares similarities to policies in the West. Anyway, the strict admission policy practiced everywhere was related to the expected needs of the individual branches of the national economies. This explains why the dropout rates were rather low during both the training courses and the terminal examinations; on the other hand, this system was characterized by comparatively low proportions of university students within the corresponding age groups (18 to 23), for instance, 21, 4 p.c. in the Soviet Union and 16, 2 p.c. in Czechoslovakia and 27, 9 p.c. in Western Europe (Straka, 1991, p. 94).

(3) The subordination of higher education under the political monopoly of Party and State was reinforced by direct control exercised by the correspondent ministries, as a rule organized as separate units (Ministry of Higher Education, Ministry of Science and Higher Education, etc.) with overstaffed bureaucracies at their disposal. Overstaffing also applied to the management of higher education institutions. 'Academic autonomy' which once had been a privilege of universities, was abolished or, in some cases reduced to purely nominal rights. For instance, in 1958 Bulgarian universities were given back the right to elect their rectors and deans. Yet since no election could take place before the Supreme Party authorities had given their 'recommendations', the de facto range of responsibilities remained as it had been installed at the end of the Second World War. (Bachmaier 1991)

The Hungarian scholar István Bessenyei has proposed the term 'Prussian-Soviet Model' to define the hierarchic and bureaucratic character of higher education management in the 'Socialist Bloc'(Bessenyei, 1991; p. 152; cf. Pribersky 1991).

The adequacy of this term, however, is debatable, insofar as the Prussian-German university was not directly steered by the State authorities; instead it was marked by a considerable degree of inner 'autonomy', though, as in most European countries, constrained by State supervision and decision-making with regard to the appointment of professors (out of lists submitted by the faculties) as well as to the provision and control of budgets.

The supremacy of State authorities in 'socialist' European Europe was particularly exercised by their right to introduce, revise and withdraw syllabi and training schemes, at least for all obligatory courses which were uniform throughout the individual countries. This rule also applied to the 'federal' Soviet Union.

The most striking manifestation of the State (and Party) supremacy could be made out in the ideological penetration of the syllabi, particularly in the humanities and social sciences. Furthermore, the obligatory programme comprised extra-disciplinary courses for students of all faculties, such as Marxism-Leninism, History of the Communist Party, etc., let alone military exercise for men.

(4) Higher education in Eastern Europe in the 'pre-socialist' periods had been structured on a binary line with universities and polytechnic as the main pillars. The universities were, apart from their legal status as 'autonomous bodies', privileged by the acknowledged philosophy and practice to link teaching and research with the distinct dominance of the latter. Under the 'socialist' concept, binary structures were abandoned as a corollary of the subordination of higher education establishments to both ideological dominance and central economic planning. This change entailed the transformation of the universities to mere teaching institutions, research being relegated to a minor position. In particular, most of the newly founded universities at the periphery, especially in the Soviet Union, were not given any research resources. The staff was loaded (and often overloaded) with teaching obligations.

Where research was foreseen in universities, it was incorporated in 'national research plans', usually under the chairmanship and management of State agencies or extra-university research institutions. In each country the top of the pyramid in this sector was represented by the National Academy of Sciences under the direct responsibility of the Council of Ministers. While the Academies focused on fundamental research with (natural) sciences dominating, applied research fell in the domain of so-called 'branch institutes', each under the direct supervision and control of one of the numerous specialized ministries or authorities (industrial branches, agriculture, navigation, forestry, mining, trade and commerce, social services, medical care, education, etc.). Within the 'branch' groups the Soviet Union and the GDR held an exceptional position with Academies of Pedagogic Sciences as centres for educational research, curriculum development and ideological instruction in the area of general education.

In the last years of the 'socialist period', the 'branch institutes' increasingly had to compete with special research institutes which were emerging inside the production sector itself, particularly within the big State firms. The ties of training schemes to the specialised needs of the national economy were considered as a basic component of the syllabi and examination orders. Nevertheless, this orientation did not lead to the total abandonment of 'academic' concepts, all the more so as the Academies of Sciences insisted on the availability of qualified 'researchers'(in the 'pure' sense). In this context, one should mention the university of Novosibirsk which was established as a 'research university' alongside the branch of the Soviet Academy of Sciences in the late '50s (with only about 4,000 students at the end of the '60s).

As regards the 'regular' universities and, even more, the polytechnic, the production-oriented training was reinforced by contracts between higher education establishments and firms comprising, beside special research programmes, extended learning-by-doing periods and practice for students in the production sector. In this respect, Romania developed the most ambitious models, followed by Bulgaria and Yugoslavia (Bachmaier, 1991; Soljan, 1991). This policy neglecting the training of theoretically qualified scientists, however, has met with harsh criticism - in Yugoslavia during the late '80s, in the other two countries after the overthrow of their 'socialist' regimes.

(6) As part of the loss of 'academic autonomy' universities were deprived of the conferring of academic degrees. Only in Czechoslovakia and Hungary the universities retained the right of conferring so-called 'little' doctorates, while the 'scientific' degrees of Candidate and Doctor became the responsibility of the Ministries of Higher Education. Since the setting of prerequisites for degrees was no longer a prerogative of autonomous academic bodies, the doors were opened to manipulation in the form of 'political' degrees as means of rewarding praiseworthy Party or State functionaries (and sometimes also, of ministerial officers who had incurred their superior's displeasure). On the other hand, the big Academies of Sciences were widely able to keep outer interventions away from their research programmes and thus enable the outcome of remarkable scientific achievements, although frequently at the price of obedience to ideological and political campaigns such as peace appeals, struggle against inner or outer enemies, etc. This admittedly restricted privilege could be maintained particularly by those who could base their legitimacy on long-standing reputation, such as the Soviet Academy of Sciences (founded in 1725 as the Imperial Russian Academy of Sciences).

(7) Finally, the inclusion of higher education in the ideological indoctrination and economic planning led to the dissolution of universities as centres of pluralistic thinking and communication. The remaining 'universities' were frequently reduced to the faculties of humanities and sciences, while the extra-university higher education sector was broadened by the transformation of the former faculties of law, medicine and economics to separate units alongside the existing and emerging polytechnic for engineering. Since this sector, in its turn, underwent further subdividing, the whole higher education system, compared to its western counterparts, was characterized by extreme specialization.

Quantitative growth can be registered as the chief asset in the development of higher education during the socialist period. This statement holds true even when one considers the lag in numbers of establishments and students compared to developments in western countries, particularly in the United States with her totally different higher education system. The increase in the numbers of institutions and students was greatest in the Soviet Union and the developing countries to South-East Europe, while the enrollments in Czechoslovakia and, especially in East Germany, indicated a much slower growth. In this respect one has to add that in the whole socialist bloc the development of higher education was paralleled by the expansion of upper secondary and post-secondary technical and vocational schools which, in particular Czechoslovakia and East Germany, had certain compensatory effects with regard to professional training of young people.

In all countries the quantitative growth was accompanied by the foundation of many new establishments, especially at the periphery of the respective countries which resulted in what the Croatian educationalist Nikša Nikola Soljan has identified as 'demetropolisation' (Soljan 1991; cf. Weilguni 1991). Compared to Western countries, universities and polytechnic in Eastern Europe have rather small enrollments usually only a few thousand of students as a rule. This trend of distributing higher education geographically doubtlessly had positive effects on the development of intra-national infrastructures. On the other hand, it led to discrepancies in quality between metropolitan and peripheral establishments concerning the qualification of teaching staffs, the admission of applicants and the equipment with technical instruments, etc. In order to fill such gaps in the centres of higher education, such as in Moscow and Leningrad, special in-service courses were held for professors and lecturers from the periphery.

With this background higher education has been subjected to wide criticism following recent revolutionary changes. Critical comments concentrate on the backwardness and overspecialization of training programmes for students, poor qualification of teachers, unreliable admission policies, insufficient renumeration of staffs. Most comments end up in complaints about the bureaucratic rigidity of the management and the low material resources.

The reasons for these deficiencies go back to fundamental flaws in planning which has caused permanent gaps between aims and objectives on the one hand and the realities on the other. As regards the socialist bloc as a whole, this failure was aggravated by the lack of effective cooperation among the comparatively isolated individual systems. This policy was, on the one hand, favoured by the Soviet Union which preferred bilateral agreements with the individual satellite States to close multilateral ties. On the other hand, one can assume that there was also a certain resistance in the satellite States against coercive adjustment, Bulgaria excepted.

However, the existence of fundamental common features did not prevent variations with regard to the structures and curricula. Divergences became manifest and indicated to what extent and how western experiences were adopted. Moreover, there were historical reasons for continuity or survival of specific national or regional traditions. Explanations of differences in this domain can be reached by considering the following:

(1) In the comparison of higher education between the Soviet Union and the other countries, we must take into account the duration of the socialist development up to the end of the 1980s which resulted in the Soviet Union's being a model, to which we have already referred. One must also bear in mind the fact

that the transformation of higher education in Russia that became sovietized after the October Revolution was comparatively radical. In the satellite countries after World War II, however, there was a step-by-step adaptation of the bourgeois universities which already existed in the capitals and big cities, to the new social and political conditions of the socialist order to a greater or lesser extent under pressure by the authorities responsible. Higher education presents a good illustration whether and to what extent elements of the inherited academic autonomy could be tolerated within the dominating guidelines of adjusting teaching and research to the changing requirements of economic planning. In this respect, Poland and Hungary maintained the greatest distance from the Soviet model.

(2) The establishment of priorities in higher education policy was determined essentially by the level of industrial development and the state of education of the population at large at a particular time. This factor was significant especially from the point of view of the initial conditions which prevailed when the socialist period in educational history began in the individual countries. It distinguished the comparatively highly developed and established structures of universities and polytechnic in Czechoslovakia and the GDR from those of other countries which were less industrialized.

Here we must also point out the inflexibility of the policy in the pursuit of uniformity of the early 1950s, wherein the basic features and details of the Soviet higher education system were imitated even when this included a regressive development. This applied to East Central European systems in Poland, Czechoslovakia, Hungary and the GDR. In this context, the exceptional position of Yugoslavia is worth special attention. In spite of the steering role of the Union of Communists which ensured party rule there as well, the federalization of the State and the practice of self-management laid the ground for bureaucratic decentralization. The concept of self-management was implemented by the cooperation between universities and firms which, in their turn, were organized according to this main principle. It is true that the comparatively decentralized structure saved Yugoslavian universities the trouble of overcentralized bureaucracies. On the other hand, the incompetence of the elected delegates also resulted in the establishment and growth of bureaucracies, although here, within the framework of smaller administrative units. In the final run, the local decentralization was, to a good extent, invalidated by far-reaching standardisation of the higher education system of the whole Federation by which the then diversified universities and polytechnic were reduced to two types of four-year faculties and two-year higher schools (at post-secondary level. (Soljan 1991)

(3) The relationship between the level of the economy and the state of higher education directly indicates the specific historical antecedents of the individual national systems not only to the pre-revolutionary bourgeois period but also into previous centuries. These effects are discernible today in the national and supra-national traditions. This factor will be dealt with later because it directly affects present-day battles over national identity and its implications for reform of higher education. Therefore, we shall mention here only a few exemplifying cases. The Hapsburg-Austrian policy, which can be traced back to Maria Theresia and Joseph II and which produced the establishment of a highly developed and efficient university system in the 19th century, has left

its traces not only in higher education of Czechoslovakia, Hungary, Slovenia and Croatia, but also - in competition with French influences - had some imprint on developments in Poland and Romania, whereby the aforementioned internal border between Transylvania and old Romania should be remembered. The heritage of the Czarist past was not entirely extinguished by the Soviet system. More than in the traditional universities, it is still alive in the Academy of Sciences. Finally, the Prussian-German university idea which was conceived by Wilhelm von Humboldt had a tremendous impact on university development in Eastern Europe. The survival of certain traits of academic autonomy must be seen in this light.

Comparative educational research conducted in western countries in past decades has, on the one hand, in principle criticized the system-transcending political and ideological monism of the socialist systems. On the one hand, however, the system-immanent appraisals have laid the ground to positive conclusions concerning certain attainments of higher education policies and drives in Eastern Europe. Such positive conclusions refer not only to studies of the quantitative growth, but also to sectoral innovations. However, one cannot make this statement without emphasizing that all these investigations were, to a large extent, conducted from an external viewpoint which was caused by limited, if not totally barred access to primary sources and field studies. Thus, after the radical changes in Eastern Europe, comparative education research is challenged by new tasks consisting of re-analysis and scrutiny of the past socialist period from an inner view which has been offered, although not equally, by the availability of hitherto inaccessible sources and data.

3. Sectoral initiatives towards reform in the '80s

This presentation would not be complete if we neglected certain tendencies indicating the beginning of a departure from rigid and doctrinaire positions. They can be traced back to the 1970s. There were attempts to reform teaching methods, for instance by replacing the traditional frontal lecturing and memorization by group and laboratory work and by activating students to independent learning. Another area of reform concerned the admission policies where, particularly in Hungary, attempts were made at integrating secondary school leaving and entrance examinations, thus overcoming the stress of organising two examinations within a few weeks (in May and June). The farthest going march into the future could be observed in Hungary (Halasz/Lukacs). There the Education Act of 1985 included features of reform in higher education, although the supremacy of the party organs was not restricted. In particular, this Act confirmed the first steps towards decentralising the network of responsibilities in the management; on the other hand, it stressed the need for inner autonomy to be granted to the organs (rectors, senates, faculties, etc.) of the individual universities. The Act as a whole became obsolete as a consequence of recent changes, but the innovative drive inherent in it is appreciated in Hungary today.

In Poland where communications with western universities and research institutions had also been relatively open, although characterized by continual swings between progress and regression, reforms were mostly stimulated by various inquiries of the Institute for Science Policy and Higher Education (Instytut Polityky Naukowej i Szkolnictwa Wyszego) which was closed in 1991. Its comparatively open orientation became particularly evident by its cooperation with western and international institutes and organisations. Furthermore, the Report on State and Trends of Education in the People's Republic of Poland which was completed by the second Expert Committee immediately after the Round Table had reached its first success in overthrowing the socialist regime (1989), contained a chapter devoted to the need for reforms in higher education. (Kupisiewicz 1991)

Finally, one should not overlook the attempts at modernising organisational and curricular components of higher education in the Soviet Union since the middle of the 1980s. In this connection, special mention has to be made of the research done by the Institute on Problems of Higher Education (Institut problem vyssego obrazovanija, Institute of Higher Education today) in Moscow. Its efforts, however, have not shown visible outcomes since they got involved in the controversies of *perestroika*. Certain steps towards more flexibility and openness to cautious cooperation with western higher education institutions could even be made out among the hardliners: Bulgaria, Czechoslovakia, and GDR - although mainly in theoretical debate and hardly in practice; only Romania remained in the state of its peculiar torpidity in which it had been driven by Ceaususcu's autocratic regime. However, all these pre-revolutionary initiatives towards sectoral reforms have been finally overruled by recent events and changes.

To come back to our introductory remarks, the present situation gives evidence of multifarious approaches to innovations and reforms in the higher education systems of the East European countries. For the most part they are still at a stage of debate and initiation. The diversity of the transformation processes, taken as a whole, depends on the one hand, on different national and regional traditions. On the other hand, they mirror the comprehensive scope of the revolutionary changes which have seized the political, social and economic frameworks related to higher education. In general, it presents a situation which is characterized by "rolling developments". In an attempt at proposing a tentative topology, one can make a distinction between three fundamental frames of reference for change.

The first is represented by the Commonwealth of Independent States. As long as the Soviet Union was existing, the changes which were on the way were related to *perestroika*, i.e., to reforms inside the socialist system. Nonetheless the cases of system-transcending departure need special attention. The approach as a whole was affected by the turbulence of the August 1991 putsch and the following four months of wavering actions and intentions characterising the agony of the Soviet Union. Nevertheless, it is worth referring to again the President's decree of 15 May 1990 because it opened new perspectives, including radical departure from rigid admission policies and highly restricted access to information. The main goals, as proclaimed in the State programme, should be "to guarantee that the citizens of the USSR exercise their rights and liberties in the field of higher education...to create the prerequisites for raising the quality of higher education and ensure the effective use of the scientific potential available in institutions of higher education". (Savel'ev 1992, p. 41)

Within the second frame of reference we find Czechoslovakia, Hungary and Poland. (Bessenyei, 1991; Krankus, 1991; Pribersky, 1991; Scharf, 1991; Straka, 1991) In these three East Central European countries the evolutionary developments including the 'velvet' revolutions to use Vaclav Havel's slogan, have already reached genuinely democratic standards, particularly with regard to academic autonomy.

The third frame of reference is represented by countries where higher education is in flux and where system changes have been, more or less, limited to eliminating all explicit references to the previous regimes and proclaiming the democratic nature of the post-socialist orders. To this category one has to include Rumania, Bulgaria (Bachmaier, 1991; Bizkov, 1991), Albania and, finally, collapsing Yugoslavia. (Soljan, 1991; Weilguni, 1991)

In a wider framework Eastern Germany could be considered as a fourth category, specified by her integration into the social system of the Federal Republic of Germany. The continuing existence of structural, curricular and, above all, attitudinal features of the socialist inheritance indicate, however, that Eastern Germany will remain a distinct unit with German-German and German-East European dimensions.

Since uncertainty is the significant feature at present, we must refrain from offering any definite analysis. Constantly observing the scene, however, we shall try to identify some trends. The following list of items should be understood only as a tentative approach.

(1) All the innovative approaches are focused on the removal of all indoctrinating pressures of the socialist systems by means of political power and ideological doctrinairism. It goes without saying that the development towards democratic and pluralistic self-awareness of higher education is greatly dependent on the aforementioned degree of political revolutionism. The state of the revolutionary process becomes manifest in the closing down of universities, institutes and chairs which were devoted to one-sided investigation and transmission of the Marxist-Leninist ideology (or, when this is thought to be possible, in their transformation to institutes of sociological research, etc.), in the elimination of the obligatory area of courses in ideological education and in the purification of curricula and syllabi in general and of susceptible subjects in particular such as history and literature. Thus, university teachers and examination boards have to tackle emergency situations in the everyday practice which are not only caused by the cancellation of certain syllabi and the withdrawal (or at least selected application) of hitherto valid textbooks, but also by the suspension of certain parts of the examinations before new alternatives are conceived.

(2) The attainment of spiritual freedom and pluralism is closely connected with a new way of handling the steering mechanisms of the higher education system and, therefore, with the role of the State in higher education policies. It should not be surprising that the removal of bureaucratic and ideological suppressions, has entailed particular weight with regard to calls for democratization and efforts for restoring traditional academic autonomy. Yet, the current debates on how this concept should be put into practice in laws, decrees and statutes, are often different from similar approaches in Western Europe by the radicalism of the models and propositions. The establishment of self-governing bodies immediately following the political changes give evidence of such swings to all-round participation, e.g., the 50% proportion of students

at Czechoslovakian universities. There, however, the pendulum has swung towards the middle again and has resulted in the students' proportion of one-third. In general, the debates about the quorum refer to the representation of professors, lecturers, students and management personnel in the governing bodies.

(3) The Hungarian sociologist Tamas Kózma has identified the socialist society as an educational affluent society. (Kózma 1989) His thesis points to one essential reason explaining the inflexibility and rigidity of the education systems in the countries of the former socialist bloc. As a concomitance of the intended and initiated departure from comprehensive planning by the State authorities to the re-establishment of the market and the restitution of private property, one has to study all the models which dominate the discussions under the aspect of decoupling education and employment systems. Above all, this issue is particularly relevant because of the necessity to remove the ties between school-leaving certificates and job guarantees. This consideration needs to be studied all the more so as job guarantees were allocated even to various rungs of the employment hierarchy.

The consequences of this change, however, come forth by means of the remarkable impacts on the admission policies at the levels of upper secondary and higher education. They confront policy makers in economy and education with tasks they are not accustomed to. (Kuebart 1990) Moreover, one has also to consider the subjective side of these consequences, insofar as young people with higher education certificates have to care about finding jobs themselves and take into account that in the concrete situation the available jobs need not be congruent with one's formal qualification. The issue of decoupling has been intensively discussed in western countries, too, particularly during the past twenty years, and one must regard its interconnections with the traditional pre-stabilized harmonies between qualification and employment, e.g., between teacher diploma and appointment to a teaching post. However, such linkage only comprised some sectoral parts of the employment system, and even there it has been abandoned long since, as for instance, in the (old) Federal Republic of Germany. On the other hand, some changes explain why in some former socialist countries, above all in Hungary, the pendulum swung to the other side where the job regulations depend on strict market-dominated norms. (Halász/Lukács 1990)

The high esteem of free market philosophies has encouraged another socio-political trend which directly influences higher education policies. Having gotten rid of the tight budgetary and organisational fetters of socialist planning, pleas for including higher education in the rules of supply and demand meet with interest and acceptance. Overestimation of the possible speed of such a radical change in systems with strict state-supervised management and financing inevitably leads to disappointment and failure. The development in Hungary where at the end of the 1980s radical decentralization of higher education management and free financing was propagated, exemplifies the return to more State responsibility which, of course, need not end up in the restoration of the former rigidities.

(4) Structural and curricular reforms are, above all, aimed at achieving modernisation. As far as organisational structures are concerned, efforts have been taken to overcome the rigid grading systems according to which, like in primary and secondary schools, students are promoted from one year to the next.

Instead, open arrangements are proposed, and recommendations have been given to adjust the existing standards of degrees of higher education (with their terminal certifications) in order to make them conform with Anglo-Saxon education standards demarcating undergraduate from graduate study courses. Aleksandr. Ja. Savel'ev has summarised the need for structural reform of higher education in Russia with reference to:

- the education levels and number of terms;
- the types of education (universities, academies, specialised institutions);
- the education forms (full-time, part-time and correspondence courses);
- the subordination of institutions of higher education and different levels of the administration system (union, republic, local) (Savel'ev 1992, p. 42).

Savel'ev's considerations are illustrative, apart from his reference to the union (e.g. Federal) level which, however, has not become obsolete with regard to the Russian Federation.

(5) The universities emphasize the need of, again, including research in their work as an essential component to be linked with teaching. This demand, however, raises complex problems. On the one hand, the extra-university research institutions, in particular the Academies of Sciences, are not willing to see their capacities restricted and share them with the universities. Therefore, they have started campaigns in order to prove the benefits of their contributions to the national science outcomes. Secondly, the universities, being involved in tremendous internal troubles with regard to their teaching obligations in a period of increasing enrollments, are hardly prepared to cope with the new challenge. Thirdly, they often lack scientists with that experience which lays the ground for the development of research capacities, let alone the non-availability of material equipments. Finally, the reorganisation of the national research system must be seen in connection with the reform of interrelations between research and economy under free market conditions.

(6) Higher education has to (re-)identify its place in society. This search is determined, on the one hand, by the aforementioned principles of academic autonomy and free market policy. On the other hand, in order to meet the challenges of modernisation, universities have again to become integrated, which means the re-incorporation of the separated institutions as faculties and university departments. Legal provisions of recent years indicate that this path has been taken. Furthermore, modernisation means opening the universities to new tasks with special regard to the development of multi-disciplinary projects, for instance in the area of economic studies and research in connection with ecological approaches.

Not surprisingly the initiatives which have been taken in order to overcome former stagnation and backwardness are linked with efforts to find partners for cooperation in the Western world. One mainstream goes to North America, where many universities and research institutes (in Canada and the United States) have established extended scholarship programmes for lecturers and students from Eastern Europe. Western Europe is the goal of the other mainstream. Here the European Community has taken initiatives in creating exchange programmes between West and East European universities within the project of TEMPUS. Polytechnic, on the other hand, are included in the PHARE programme organized by the EC Centre for the Development of Vocational Training (CEDEFOP) as platform for meetings between East and West; so far Hungary and Poland have been identified as addressees in the East European countries. All these projects are based on the conditions that East and West European institutions must be engaged in any case.

4. Concluding remarks

The crisis in higher education in the whole region of Eastern Europe has been recognized by prominent representatives of these countries in both the academic and the political and economic sector. A. Ja. Savel'ev's appraisal may be, to a greater or lesser extent, typical of the situation in all countries of the former socialist bloc:

> "The analysis of the higher education system of the USSR shows that it is not dynamic and flexible. The alteration of the nomenclature of professions resulted only in the elimination of apparent doubles and the normalisation of their distribution with respect to professional groups. Stipulating uniform standards of instruction in practically all fields of specialization causes unnecessary expenses because different specialists with different levels of training are required in practice, and often education received at institutes of higher education appears to exceed that essential for a given type of work and so remains unused." (Savel'ev 1992, p. 47).

Keeping in mind the enormous troubles on the economic scene one can conclude that the march into the future is more than gloomy. The internal problems in all East European countries aggravate the crisis in higher education probably even more than the economic and financial austerity. In this context one has to take into special consideration the dissolution of the Soviet Union, the collapse of Yugoslavia and the tensions between Czechs and Slovaks in the CSFR. Moreover, each of these countries has to cope with multi-nationality issues resulting from their pre-revolutionary inheritance and the migration policies under the Soviet strategy.

In the former Soviet Union higher education is primarily concerned by this factor, because in all the Republics the number of Russian lecturers and students is remarkable, and they often are the majority which becomes manifest in the Russian language as the dominant medium of instruction. Even at many non-Russian universities lectures are given in Russian; this, of course, can be explained to a good deal by the stage of the academic and scientific standard of Russian against that of many idioms and languages, particularly in the North and South East of the Commonwealth. However, on the other hand, it mirrors the present-day amalgamation of multi-ethnic populations. This is why higher education is closely involved in the multinational and multi-ethnic issues requiring solutions on the basis of peaceful co-existence.

Let alone the overall troubles caused by the economic, political and socio-cultural crisis, higher education *per se* has to overcome enormous internal difficulties. Universities and polytechnic must overcome structural stagnation and renew contents which have become obsolete. Democratization and autonomy can be identified as basic concerns indeed. Yet, illusory expectations must give way to realistic appraisals that many problems can only be solved by long-range efforts. The warnings against hasty and unreflected borrowing of Western examples have gained structural and curricular achievements of Western universities; frequently the Eastern counterparts do not take special regard of the conditions under which these examples exist. In particular, such search for borrowing neglects the long and hard experiences *before* such achievements have been reached.

As regards the relation between higher education and the world of work, the socialist experiences, although based upon the principle of merging training, research and production, are unlikely to be helpful for developing future-oriented models. These must follow the idea of free partnership between universities and firms, whereby transitional solutions are inevitable, again to be reflected against short-term, free-market euphoria.

Higher education is likely to play an essential role in democratizing Eastern Europe. Thereby remembrance of pre-socialist achievements which in many cases resulted in fostering high-level scholars and solid average specialists may turn out to be a promoting factor, as long as it is not superimposed by nostalgic illusions. Whether higher education is able to take its expected and necessary role in the desired societal progress of the East European states, will depend on the one hand, on how and to what extent a balance between initiatives, continuous efforts and realistic expectations will be gained and maintained. On the other hand, Western expertise and advice is needed on all levels. Exchange of lecturers, students and, last but not least, managers and administrators is suited to support innovative efforts to a remarkable degree; probably it is more important than material help. This does not neglect the need of providing higher education establishments in Eastern Europe with modern equipment and means of information, teaching and learning.

The collapse of the socialist regimes in Eastern Europe has broadened and intensified the foundations for a universal development of higher education to be built upon international communication, understanding and tolerance. This challenge, however, can only be met, if *all* the internal and international obstacles are identified and removed.

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THE ECONOMICS OF HIGHER EDUCATION

Mark Blaug

Introduction

Should we be spending more on higher education? If so, should the extra funds be coming from parents or from taxpayers in general? Assuming that at least some of it will be coming from taxes raised by governments, should we alter the nature of the subsidies to higher education? Should we continue to subsidize institutions as we now do or should we begin to emphasize aid to students rather than colleges and universities? These are the sorts of questions we will be asking in this essay. The focus, therefore, is the economic value of higher education and what follows from it about the financing of higher education. The argument for the most part is perfectly general and applies as much to higher education in developed as in developing countries. Nevertheless, the problems of the First World are so different from those of the Third World that we simply cannot cover them both under a single heading. We will begin, therefore, with a discussion of the economics of higher education in Asia, Africa and Latin America and only thereafter will we take the somewhat different questions raised by higher education in Europe, North America and Japan.

Let me begin by conveying the flavor of my argument. The relationship between higher education and economic growth is too loose and indirect to form the basis for any firm pronouncements about the appropriate size or character of the higher education system. To say that the size of a country's system of higher education is simply irrelevant from the standpoint of economic growth is going too far but as a singular proposition it becomes closer to expressing the truth than the flat declaration that higher education around the world must be expanded.

I exaggerate deliberately. The late 1950s witnessed an aptly labelled "human investment revolution in economic thought": the old view that education is a type of consumption gave way to the new doctrine that education is a type of investment, more analogous to a capital good than a consumer good. Ever since, economists have been busy measuring the "rate of return" to education as a form of investment both for individuals and for society as a whole. In addition, an almost endless series of studies correlated every conceivable measure of educational attainment with every possible indicator of economic performance in the effort to demonstrate that the observed association between education and economic growth around the world is causal and not just casual in the right direction, that is from education to growth and not the other way around. However, in retrospect it is extraordinary to realize how little has been achieved by an entire generation of economists of education.

We economists cannot say that education, however, measured, is either a sufficient or even a necessary condition for economic growth and that any poor country is well advised to spend as much as possible in providing additional schooling for its people. It is all too easy to spend too much on education from the standpoint of maximizing the rate of economic growth, judging at any rate by the history of such developing countries as Jordan, Egypt, Libya and Zambia - countries that have long spend a larger than average proportion of their Gross National Product on education and yet have below average records of economic growth. What is true of education in general is particularly true of higher education: it is all too easy, as we shall see, to spend too much on one level of education as against another (without any justification in better economic performance).

And just as there are many countries that seem to have overspent on education without generating any discernible economic benefits, so there are also many countries that have had remarkable achievements in economic growth without conspicuous attention to education. Thus, Taiwan, Singapore, Hong Kong and to a lesser extent Korea - the newly industrialized countries (NICs) - were not great spenders on education in the 1950s and 1960s when they were laying the foundations for their subsequent high growth performance (in the First World, the same remarks apply to the Federal Republic of Germany). Since then they have indeed emerged as relatively high spenders on education but that is only to say that rich countries spend more on education than poor ones, which proves, not that more education produces growth, but that fast growth produces more education.

At one time, chiefly in the 1960s, it was fondly believed that it was possible more or less precisely to specify the manpower requirements of certain chosen targets of economic growth. Thus, once a country had decided that it wanted to grow at a certain rate, the implications of that growth rate for upper secondary and tertiary education could be quantified, furnishing a definition foundation for technical and higher education planning (for details, see Blaug, 1972, Chap. 5). However, this belief in the art of manpower forecasting died away in the 1970s as experience showed that long-term and even medium-term manpower forecasts were notoriously unreliable and not much better than pure guesswork (see Ahmad and Blaug, 1973; Youdi and Hinchliffe, 1985). In short, if education is indeed necessary for economic growth, it is not necessary in the technical sense that growth is impossible unless a country has the prerequisite of a certain stock of highly qualified manpower.

In the same way, it is often argued that equity provides the touchstone for educational planning: since more education typically enhances an individual's lifetime income, it was thought that greater equality in the distribution of income in a country can always be secured by greater equality in the distribution of educational attainments. However, this optimism about the equalizing effects of greater access to educational opportunities has not stood the test of time and has, in more recent years, given way to a profound pessimism about ever achieving greater social and economic equality via the route of education, a pessimism which has, however, been more deeply felt in the First than in the Third World. (Jencks, 1972)

All this amounts to virtual nihilism in respect of the impact of education on social and economic development. Is there absolutely nothing economists can say about educational policy? I believe there is, but what economists can say is qualitative, judgmental and subject to many *ifs* and *buts*. We can pronounce matters of strategy even if we must perforce remain silent on questions of tactics. I wish now to show that one of the things we can say is that higher education in the Third World is almost certainly overexpanded relative to the lower end of the educational system. Nothing so definite can be said about higher education in the First World.

The Growth of Higher Education in the Third World

We are in the midst of a worldwide financial crisis in education, compounded in equal parts from a global economic recession, a continued upward drift in the costs of education, and a tighter budgetary stance of governments almost everywhere. The nature of that financial crisis is admirably set out in Philip Coombs' World Crisis in Education (1985) or, for that matter, dozens of other sources and I shall take it as read. I shall also take it as read that there are essentially four ways in which educational systems can respond to this crisis: (1) to trim enrollments by fiat; (2) to dilute the quality of education by spreading available resources more thinly over more and more students; (3) to reduce unit costs without diluting quality by improvements in the internal efficiency of schools; and (4) to tap alternative and hitherto untried sources of funds for education. I do not intend to weigh the preponderance of probabilities among these four alternative solutions to the financial squeeze on education. I will focus attention instead on the fourth, tapping new funds for education, which I am convinced is going to play an increasing role, whatever is the likelihood of cutting back enrollments or reducing unit costs.

If we take a broad historical glance at some of the most prominent advanced countries of today that were underdeveloped fifty or sixty years ago like Japan and the Soviet Union, we could discover the following pattern: the expansion of education is marked by a deliberate policy of first attaining universal or nearly universal primary education, while holding back the expansion of secondary and higher education - this policy was pursued in Japan from about 1850 to 1912 and in Russia from 1917 to about 1930. Then, having reached universal primary education, a more generous attitude is taken toward secondary education, while higher education is still kept tightly under control. Only when secondary education had become almost universal in these countries is higher education allowed to expand. This classic pattern of allowing the educational pyramid to grow at the base, and only when the base had expanded substantially to allow it to grow in the middle and at the apex, has been completely reversed in the Third World since the Second World War. Ever since 1952, in practically every one of the hundred or so developing countries in the world, secondary education and higher education have grown faster than primary education, both in terms of enrolment and expenditure.

Not only has third-level education been the fastest growing level of education in Africa, Asia and Latin America since 1950 but the spread of unit costs between the first and third level of education varies from 1:2 in America and Europe to 1:50 in most of Latin America to 1:100 in sub-Saharan Africa. In short, in many Third World countries one higher education student costs as much as 50-100 primary educated students. So whatever the complex nature of the world financial crisis in education, the nub of the problem in the Third World is clearly the enormous expense of university education, which paradoxically falls almost wholly on the public purse. Many governments in Africa, Asia and Latin America tolerate and even encourage fee-paying universities and colleges - Korea, Japan, Taiwan, Thailand and the Philippines are lonely, conspicuous exceptions to that rule. The third level of education in the Third World is on one hand and the same time the most expensive and most subsidized of all levels of education. One may, therefore, conclude without further ado, that if any progress is going to be made in tapping new funds for education, it must take the form requiring families with children in higher education to pay a larger share of the costs of their children's schooling out of their own pockets.

Cutting Subsidies

We can sugar the pill by appropriate provisions for scholarship grants and loans for poorer students but unless we abandon the notion that university education must always be entirely subsidized out of public funds, and indeed more generously subsidized than either primary or secondary education, we may as well call a halt to the discussion of new ways of financing education. Even if we were to commit ourselves to the value judgment that everyone in a poor country is entitled to higher education, that is not to say that they are entitled to it for free. When we consider the fact that higher education in most of the Third World is confined to 1-2 per cent of the population and, that the relatively affluent are grossly over represented among those who enter higher education, we strengthen the argument for raising fees in universities and colleges and, in the case of Africa, reducing or even abolishing the unbelievably generous maintenance allowances given to university students. (Psacharopoulos, *et al.*, 1986, Box 1.3) To be sure, if higher education in the Third World was less generously subsidized, there is little doubt that somewhat less of it would be privately demanded. Thus, any case for shifting a larger part of the expenditure on higher education from public to private sources must rest on the demonstration that higher education is overexpanded in the Third World relative to the size of primary and secondary school enrollments. I have been arguing against the further expansion of higher education in the Third World for almost twenty years (see Blaug, 1979) and it is with considerable satisfaction that I have witnessed some educational authorities coming round to this view in recent years (in particular Psacharopoulos, *et al*, 1986; World Bank, 1988). Whatever criteria one adopts - manpower shortages and surpluses, rate-of-return calculations, qualitative judgments of the direct and indirect economic benefits of education - they all point to the overwhelming significance of primary education in the educational programmes of developing countries.

The move to raise tuition fees must be accompanied by student loan schemes to avoid making the higher education choice even more dependent upon parental income than it already is. But student loans commend themselves anyway on grounds both of equity and efficiency. (Woodhall, 1983, 1987; Psacharopoulos, *et al*, 1985; Mingat and Tan, 1986). A modest scholarship programme for particularly disadvantaged groups completes the policy package of increased private finance for higher education, a package whose appeal does not rest on the question whether public funds so released can be feasibly applied to lower levels of education. Obviously, if they could, the policy package becomes even more attractive. But it remains appealing, even if it proves to be impossible, to earmark the released funds for lower-level educational activities.

The Evidence: Rates of Return

Let us now take a closer look at the empirical evidence for the contention that higher education is relatively overexpanded in the Third World. The signs of growing open unemployment of secondary and higher educated individuals throughout Asia and Africa in the 1960s and 1970s (see UN-ECAFE, 1974; UN-ECA, 1978) have become even more pronounced in the 1980s and the dubious practice of manpower forecasting is nowadays more likely to produce predictions of manpower surpluses than shortages. However, unemployment statistics in developing countries are notoriously unreliable and the technique of manpower forecasting has no scientific standing. Moreover, evidence of educated unemployment and forecasts of impending manpower surpluses are at best suggestive because they refer solely to the benefits (or lack of benefits) of education but are silent about its costs. The only appraisal technique that takes account of both the benefits and costs of education is rate-of-return analysis. There is overwhelming evidence that the social rate of return on investment in education throughout the Third World is invariably lower in secondary and higher education than in primary education (see Table 1).

Table 1. Rate of Returns

		Private Returns			Social Returns		
Region/country type	N	Primary	Secondary	Higher	Primary	Secondary	Higher
Developing countries							
Africa	9	45	26	32	28	17	13
Asia	8	31	15	18	27	15	13
Latin America	5	32	23	23	26	16	16
Intermediate countries	8	17	13	13	13	10	8
Developed countries	14	-	12	12	-	11	11

Source: Psacharopoulos (1985, Table 1)
Note : N = Number of countries in each group.

The calculation of the social rate of return involves exactly the same data but both the costs and the benefits have a different meaning from what they had for the individual. The costs to society as a whole of the extra year of education is the sum of the associated outlays on teachers, buildings and equipment; these usually exceed the corresponding private costs for the simple reason that tuition fees almost never cover all the costs of education. In addition to these direct social costs, there are the indirect social costs of output lost as a result of individuals staying on in school for an extra year; these are, for practical purposes, measured by the earnings foregone by students. As for the social benefits of the extra year, these are approximated by the earning differentials associated with the additional year of schooling, now taken inclusive of the taxes individuals will pay on their earnings so as to capture some or all the "externalities" generated by education. Once again, the social rate of return is actually calculated as that discount rate that equates the present value of the total resource costs of the extra year of schooling to the present value of the corresponding total benefits.

Rate-of-return calculations for all levels of education have not been carried out for almost 60 countries in the world and in four countries such calculations have even been made at different points in time. Virtually all these calculations, with only one or two exceptions, show a remarkable similarity in pattern (see Table 1). Firstly, the private rates of return invariably exceed the social rates of return. Secondly, the private rates are always close to and in many cases just above the market rates of interest in the countries concerned (not shown in Table 1). Thirdly, both the private and social rates of return decline, not invariably but frequently, with additional cycles and even years of education. Fourthly, and most significant of all, the rates are almost always higher in developing than ind developed countries. In short, these figures clearly mean something because their systematic character could never be produced country after country by the action of pure chance.

Nevertheless, we must enter a caveat in respect of the social rate of return. The private rate of return is helpful in interpreting the private demand for education and is presumably of interest to individuals in guiding their choice between earning and learning. But why should the social rate influence the decisions of government to spend more or less on this or that stage of education? For one thing, it is not clear what social discount rate should be invoked for purposes of comparison with social rates of return to educational investment; governments do not usually operate with one single cut-off rate to apply all forms of social investment and most governments even lack a minimum rate of return that must be satisfied by, say, road transport projects or electricity-generating programmes. For another thing, we cannot be sure that the inclusion of taxes in gross earnings to express the externalities generated by education is liable to lead either to an overestimation or an underestimation of the social rate of return to educational investment.

We are all agreed that an educated individual may contribute something to the output and earnings of less educated individuals with whom he or she works; to that extent education raises the productivity of non-educated individuals. However, economists have so far failed to quantify the external effects of education and hence, cannot even guarantee that it is positive. It is, perfectly possible, therefore, that all the reported social rates of return are wild overestimates. But equally, we cannot preclude the possibility that they are wild underestimates.

Finally, and perhaps most troublesome of all, there is the question of the economic meaningfulness of the structure of relative earnings in a country. If a labour market in a particular country is riddled with imperfections, if a large portion of the highly educated labour force works for the government, and if most primary-educated individuals work on the land for a payment partly in kind - and this is surely the typical situation in the whole of the Third World - the pattern of earnings bears little relation to the pattern of relative scarcities of different kinds of labour We may calculate social rates of return for such a country but they will mean little in terms of rational decision-making in the area of education. Such doubts pertain, as I have said, to much of the Third World; they arise with double force for centrally planned economies because labour in such economies is almost never renumerated or allocated to different tasks in accordance with relative scarcities.

We may conclude, therefore, that evidence on social rates of return to education cannot be taken seriously as indicating anything about the appropriate size of the higher education sector in Third World countries.

Relative Priority of Primary Education

Having discarded social rates of return as a decisive criterion for estimating the proper size of higher education, what then is the basis of the contention that higher education in the Third World is overexpanded? To say that higher education is overexpanded is to mean that primary education is underexpanded; it is to say that the achievement of universal primary education at the earliest possible date has greater priority in the educational programmes of Third World countries than further expansion of higher education. But why not both? Not both for the reason as mentioned earlier, that Third World education is in the grip of a financial crisis. There is some scope for cost-saving-measures in primary education itself but these can finance only a small part of the expansion required to achieve universal primary education. The bulk of the resources will have to come from the contraction of secondary and higher education. And as long as a year of higher education costs 80 times as much as a year of primary education - a median figure for Africa and Asia - even a marginal shift of resources from tertiary to primary education could work wonders in increasing enrollments in first-level education. It has been calculated that in six African countries primary enrollment ratios could be raised by 100 per cent overnight merely by shifting 20 per cent of current educational expenditure on secondary and higher education to primary enrolment. (Mingat and Tan, 1985; Psacharopoulos *et al*, 1985) Similarly, even modest fees charged to higher education students could generate large sums for the expansion of primary education; large, in terms of the expansion they would purchase. (Mingat and Tan, 1986)

But what is the evidence that universal primary education has priority among the desirable objectives of educational planning in the Third World? It must be conceded that evidence of the direct economic benefits of the first 4-6 years of schooling is very thin on the ground. To many, it is simply obvious that rudimentary literacy and numeracy are absolute prerequisites to economic development but if that were so it would be difficult to explain the one-time industrialisation of the First and Second World, which typically proceeded with an essentially illiterate work force. (Blaug, 1972, pp. 247-64) Even today the cognitive requirements of semi-skilled factory work in Europe or America are no more than what is involved in driving an automobile. The qualities that modern industry does require from its work force are compliance, punctuality, attentiveness, drive, etc. In brief, a definite set of values and attitudes conducive to effective economic performance in factory setting. These traits are willingly inculcated by every schooling process as part of the "hidden curriculum". (Blaug, 1985) However, they are also inculcated by parental rearing and although it is plausible to argue that primary schools bear a much larger burden of the socialization process in developing than in developed countries, the fact remains that little progress has yet been made in quantifying - if possible - these relationships. Similarly, there are some studies which show that primary schooling has a positive effect on the agricultural output of small farmers in Africa and on the propensity of youngsters to participate in the informal sector in urban areas (Colclough, 1982; Colclough, Lewin, Oxenham, 1985), but these are too few in number and too crudely executed to allow firm conclusions to be drawn.

There are also studies which demonstrate that primary schooling generates indirect economic benefit in the form of lower birth rates and improved standards of sanitation and health care (Colclough, Lewin, Oxenham, 1985). One may also insist that some of the non-economic benefits of primary schooling, such as greater participation in political life via greater access to the mass media, are in fact, economic benefits if one adopts a sufficiently long time horizon. After all, economic development is impossible without political stability, which in turn implies a measure of national solidarity and social cohesion, and all of these are encouraged by widespread primary education. So, without pretending that universal primary education is a sufficient condition for modernisation, it is a necessary condition.

And yet at the end, what we are left with is not decisive evidence, but a qualitative judgment that the economic and social returns to investment in primary schooling in most developing countries are higher than the returns to investment in secondary and higher education.

Equity

The argument so far has been conducted entirely, or almost entirely conducted in terms of the objectives of static efficiency and dynamic growth. To turn to the question of equity which, at least in principle, is separable from and additive to the issues of efficiency and growth. The question is: would user charges or tuition fees in Third World higher education institutions promote equity? Or, alternatively expressed, do subsidies to higher education as implied by the present system of "free" higher education promote equality in some sense of that term, such that any reduction in subsidies from user charges would reduce equality?

There has been a long and inclusive debate on the distributional effects of public subsidies for higher education in the United States to test the contention that those subsidies actually have the perverse effect of transferring income from poor to rich taxpayers (Blaug, 1982). There are a few studies dealing with the Third World which tend to support that contention (Psacharopoulos and Woodhall, 1985, pp. 10-44; Psacharopoulos, *et al.*, 1986). But all of these studies, whether for developed or developing countries, are based on cross-section observations of pre- and post-tax incomes. Programmes of public finance for higher education, however, are motivated and justified by considerations of intergenerational transfers of income: the electorate agrees to be taxed now for the sake of subsidies which their offspring - born and unborn - may enjoy in the future. Since the benefits of higher education are not received by the same generation that pays them, public subsidies for higher education must be evaluated in the context of lifetime incomes.

In the absence of lifetime income data, we can only speculate about the possible effects of higher education subsidies in Third World circumstances. These effects depend in essence on the respective degrees of progression of both taxes and subsidies in the sense of the changing ratio of taxes/ subsidies to income level.

Higher education tends to raise lifetime incomes, and it is possible to imagine a tax system so steeply progressive that every university graduate eventually repays the costs of his own subsidized higher education out of extra taxes paid on his education-augmented income. In that kind of world, higher education subsidies would be nothing more than society's peculiar way of lending students the wherewithal to participate in higher education, the costs of which would be fully recouped in the course of the graduate's working life. But this is the world we live in. No tax system in the world, and certainly no tax system in the Third World, is so progressive that graduates ever pay back to society the full costs of their higher education. It follows that higher education subsidies always involve some transfer of income from the less to the more educated, from those who fail to receive higher education to those who received it. And since the unequal effects on future incomes, we can hardly escape a life-cycle approach to the distributional effects of higher education subsidies.

To gauge these life-cycle effects we need to form a judgment on (1) the magnitude of the tendency of schooling to raise future incomes, and (2) the degree to which opportunities to gain additional schooling are independent of parental incomes. The greater the impact of schooling on income and the greater the rate of intergenerational mobility, the greater is the chance that higher education subsidies work to equalize lifetime incomes. If schooling raises incomes markedly, then the existence of a progressive system of income taxation maximizes the tendency of graduates to pay back the costs of their own schooling via taxation; if schooling acts as an avenue of upward mobility in the sense of educated children earning more than their parents ever did at the same age, then higher education subsidies might well promote greater equality in the distribution of lifetime incomes. Given the low level of tax compliance in Third World countries, the first of these two considerations suggests that higher education subsidies probably have perverse effects on lifetime distribution in Asia, Africa and Latin America. On the other hand, the second of the two considerations suggest exactly the opposite. It follows that there is obviously no correct answer to the question whether higher education subsidies in Third World countries are or are not equitable.

Provisional Conclusions

Agnostic conclusions about the present system of subsidizing higher education should not affect our central argument about reforming the system of finance for higher education. There can be little doubt that if current subsidies to Third World higher education were increasingly directed towards poorer students by a combination of tuition fees and student loans repayable as a proportion of future income, the results in terms of equity would certainly represent an improvement over the present system. And if funds thus released from higher education were reallocated to primary education, thereby expanding educational opportunities for poor people in rural areas, the equity case for the introduction of user charges in higher education would be complete. In other words, despite the fact that the economics of education has so far disappointed virtually all the great hopes that were held out for the subject 25 years ago, it is possible to draw at least one dramatic conclusion about educational policy in the Third World that runs diametrically counter to what is currently practiced in just about every Third World country.

Applying the Argument to First World Higher Education

Turning now to higher in developed countries, it will be evident that the positive association between years of formal education acquired and personal earnings received forms the bedrock of the economics of education and in particular the doctrine of education as human capital.

The fact that education and personal earnings are highly correlated does not by itself prove that the cause of higher earnings is extra schooling but, nevertheless, the simplest explanation for the observation that employers offer higher pay to more highly educated workers is that education imparts vocationally useful skills that are in scarce supply. This simple explanation has been questioned in recent years by the so-called "screening hypothesis" which argues that education is associated with increased earnings and perhaps even with increased productivity, but does not cause them. Employers seek high-ability workers but are unable, prior to employing them, to distinguish them from those with low ability. Faced with no information about the personal attributes of job applicants, employers are forced to make use of "screens" that separate high-ability from low-ability workers, such as evidence of previous work experience, personal references and, of course, educational qualifications. Moreover, knowing that employers are making use of screens for hiring purposes, job applicants have an incentive to make themselves distinct by some sort of "signal". According to the screening hypothesis, education beyond a basic level fills exactly this function. By and large, it is high-ability individuals who perform well in the educational system. Educational attainment is correlated, therefore, with higher productivity but does not cause it, and hence, is no more than a screening or signalling device to prospective employers which is in the individual's - although not necessarily in society's - interest to acquire. Just as an individual's good health may be due more to a naturally strong constitution than to medical care, so according to this view is productivity the result of natural ability rather than post-primary education.

The screening hypothesis, in its extreme version, argues that secondary and higher education do nothing to increase individual productivity and have no economic value at all. There are at least three counter arguments. The educational system may select students according to their natural aptitudes but in the process it may also improve these aptitudes; thus, the educational system is perhaps more than just a screening device. Secondly, the screening hypothesis may explain the association between education and earnings at the point of hiring workers but, surely, once at work, employers will soon be able to sort out the more from the less able without resorting to paper qualifications; in other words, employers no doubt use education as a screen but experience is constantly testing the accuracy of the screen. Thirdly, an information problem is inherent in the process of hiring workers and if somehow eliminated the use of educational qualifications as proxies of ability, it is not at all clear that we could replace it by some superior social selection mechanism, for example, a National Aptitude Testing Centre; in short, the educational system may well be the most efficient social screen we can devise.

Whether there is any validity in the screening hypothesis, and to what extent, is an empirical matter. Despite a good deal of research the verdict is undecided and given the almost intractable problem of testing the hypothesis, is likely to remain so. (see Blaug, 1976) "Credentialism" or the use of educational qualifications as proxy measures of ability contaminates all feature of labour markets around the world that it would require a long sustained taboo on the issue of diplomas and certificates to discover the direct and precise impact of education on individual productivity. The screening hypothesis in its strongest version cannot be entirely true but it is not yet possible to show whether it is partially or wholly false. Nevertheless, to the extent that it is a half-truth or even a quarter-truth, it throws even more doubt on the use of social rates of return as criteria for public investment in education.

The suspicion that the screening hypothesis is at least half true also casts a new light on the economic value of education. We have hinted earlier that education is more than cognitive knowledge and we want now to strengthen that idea.

The Economic Value of Education

To illustrate this point, reference is made to Benjamin Bloom's famous Taxonomy of Educational Objectives (1956), a book that for a long time was the veritable bible of many curriculum reformers in America. Bloom made the extraordinary claim that the objectives of all curricula in any subject at any stage of education can be exhaustively classified into three categories, namely (1) "cognitive knowledge"; (2) "psycho-motor skills" and (3) "effective behavioural traits". By cognitive knowledge, Bloom meant the sum of memorized facts and concepts that are supposed to be crammed into the student's head; by psycho-motor skills, he meant the manual dexterity and muscular coordination that a student is supposed to acquire; and by effective behavioural traits, he meant the values and attitudes shaping behaviour, which a student is supposed to take away with him or her at the completion of a course. The same idea had been expressed much earlier in much simpler language by a famous educator, Johann Heinrich Pestralozzi. Pestalozzi said that all education touches either the "head", the "hand" or the "heart" of the child and these three H's correspond to Bloom's more forbidding terminology.

What use can we make of this? When one says that education is economically valuable, that it makes people more productive, most of us think immediately of the first H, cognitive knowledge. We assert, in other words, that it is the educated workers' knowledge of certain facts and concepts that makes him valuable to employers. We might call this "the pilot fallacy": in order to fly a plane, you need a pilot, and flying a plane requires cognitive knowledge (and some psycho-motor skills) which can only be learned by a formal training course. But what employers really value in most workers is, not what they know, but how they behave. What matters particularly is "effective behavioral traits", such as punctuality, attentiveness, responsibility, achievement, drive, cooperativeness, compliance, etc. The cognitive skills required to carry out most jobs in industry and agriculture are learned on the job by doing. What formal education does, therefore, is not so much to train workers, as to make them trainable. As for university graduates, what employers demand are once again, not cognitive knowledge, but rather a set of personality traits, such as self-esteem, self-reliance, versatility and the capacity to assume leadership roles. In a nutshell, we may say that elementary and secondary education breed the foot soldiers, while higher education trains the lieutenants and captains of the economy.

Now, it is a curious fact that these crucial behavioural traits largely accounting for the economic value of education cannot be efficiently conveyed directly but only as a byproduct, as a "hidden curriculum", of an educational process directed at cognitive knowledge. Imagine a class in punctuality; it would be possible but it would also be immensely tedious and probably ineffective. But punctuality is powerfully fostered by an educational process rigidly tied to a timetable throughout every moment of the school day. One of the greatest problems running a factory in a newly industrialized country is that of getting workers to arrive on time and notify the plant manager when they are going to be absent; the lack of punctuality in the work force can raise labour costs in a developing country by as much as 50 per cent over a developed country.

This is a simple but hopefully telling example of a general phenomenon: the economic value of education resides much more in the realm of behavior than in the realm of cognitive knowledge. This is why an endless series of studies have shown that in all countries there is little, if any, relationship between the subject graduates have studied at university and the jobs they eventually take up. To be sure, the fields of study offered by universities runs the entire gamut from engineering, math, computing, physics and chemistry at one end to humanities, history, sociology and psychology at the other. In the first group, there is a fairly close match between occupation and education, the job making direct use of the subject-specific knowledge acquired in the classrooms. However, in the second group, there is virtually no relationship between curriculum studied and occupation entered subsequently and this group in fact comprises a much larger proportion of graduates than the first group! But even in the first group, more general competence, such as the ability to digest information to communicate it verbally and on paper matters as much as the subject-specific knowledge.

Back to Manpower Forecasting

It is evident, therefore, that the basic error of the manpower forecasting approach is what we have labeled "the pilot fallacy". If only all jobs in an economy were like those of the pilot, there might be some merit in the notion of forecasting manpower requirements, although there would still be the problem of the gross inaccuracy of these forecasts. But pilots, brain surgeons, mechanical engineers, physicists, computer scientists, etc., are an extremely small portion of the labour force even in rich countries and provide a poor basis for fundamental thinking abut the economic role of education.

It is sometimes said that the developed countries have entered the tertiary stage of industrialisation in which the service sector will afford employment to an ever larger fraction of the labour force; moreover, the growth of tertiary-stage services is increasingly knowledge-based and is a byproduct of the gradual computerization of both white-collar and blue-collar work. It follows, so the argument goes, that future economic growth will require highly-educated personnel. Here then is an entirely new "manpower-forecasting" argument for the expansion of higher education in the United States, Europe and Japan.

Unfortunately, this argument is dubious for all the reasons given above in relation to the economic value of higher education. In addition, the argument ignores the dynamics of personnel development, namely, the phenomenon of "de-skilling". Technical progress is constantly raising the skill requirements of industrial processes and, in the absence of countervailing forces, this would result in ever rising labour costs per unit of output. But these cost pressures motivate industrial engineers to break down and simplify the ever more demanding cognitive requirements of new techniques. Thus, in the 1950s in the early stages of the microchip revolution, the shortage of computer programmers was so acute that it led to an insatiable demand for numerous university graduates willing to retrain as computer programmers. Within a decade, however, a high school diploma was regarded as adequate for potential programmers in a 2-3 week training course. In short, computer programming has been de-skilled and this is in fact a constant feature of the adaptation of new techniques and products to the existing labour force.

In a careful analysis of the match between the educational composition of the labour force and levels of economic development in more than 50 countries around the world, the OECD (1970) concluded that the actually observed educational levels of workers in industry in both developed and developing countries are more the result of supply than of demand or what they called "push" rather than "pull" factors. Workers in, say the United States are better educated than those in India, not because American industry was so advanced as to require highly educated workers but because hiring standards for jobs in the US were adjusted to employ them.

Justifying Public Subsidies

The economic value of higher education is widely misunderstood. That still leaves open the question, however, whether higher education in the First World should be expanded by further public subsidies or increasingly privatised and left to the market place.

The basic justification for public subsidies to higher education is based on the so-called "external effect" of colleges and universities, that is, on the benefits of higher education which do not accrue to the graduates of higher education. For example, higher education may make a person more prone to participation in political and civic functions, less inclined to commit crime and fall back on social security and other welfare services, and all these are external benefits that graduates are unable to appropriate. But the problem is that none of these have so far been quantified and there is some doubt that they ever can be, in which case they seem to provide no guide to public spending on higher education except to increase it without limit. Besides, these positive externalities might well be offset by negative externalities: the tendency of higher education to raise job expectations unmatched by job opportunities, resulting in personal frustration and disillusionment, which occasionally leads to rioting.

In any case, it is not the alleged external effects of higher education that are responsible for the present universal system of public support for higher education. In almost every case, it was electoral support for policies deemed to be equitable that accounted for the particular mix of subsidies that one actually observes in different countries. It must be said that it is not easy to account for the variation in subsidy patterns around the industrialized world.

The Composition of Subsidies

In the United States, students generally pay tuition fees and only a small fraction receive subsistence aid. But in most other developed countries, higher education fees are either zero or close to zero and, in addition, students either receive means-tested subsistence grants and/or loans at interest rates below market levels and/or subsidized meals and accommodation, not to mention tax relief to parents. There is clearly a wide range of elements in the total subsidy package as well as wide variations in the total level of subsidy from the most generous end of the spectrum (Britain) to the most niggardly (possibly Japan). (See Blaug, 1979b; Johnstone, 1986) The question is: what principals govern this mix of public subsidies to higher education?

If we are going to subsidize higher education at all, the easiest way of doing so is to subsidize tuition fees. The most efficient way is to subsidize students, not institutions via a vouchers system. If we subsidize students, institutions will be forced to become consumer-oriented to compete for students. Since manpower forecasting is inaccurate and since students have a strong personal incentive to be well informed about employment opportunities, we are much more likely to avoid manpower shortages and surpluses by allowing students to choose both the subjects they wish to study and the institutions at which to study them. In addition, by forcing institutions to compete for students, we also encourage them to become cost-conscious and hence, minimize the cost of producing a graduate of given quality. Finally, by subsidizing students rather than institutions, we remind students of the social costs of their education, which in turn induces them to maximize the educational benefits of 4-6 years of higher education. On the other hand, to subsidize institutions instead of students, as we do now, encourages the maintenance of courses for which there is no longer any demand, promotes the inefficient use of academic resources, or at least does nothing to discourage it, and disguises the true costs of higher education to the community. In other words, we have managed everywhere to subsidize higher education in the most inefficient manner possible.

The living expenses of students should be subsidized, if they are to be subsidized at all, by means of loans not grants. There is a clear economic case for student loans to finance both tuition fees and living expenses. One of the signal distinctions between physical capital and human capital is that one can borrow in the capital market to finance investment in physical capital but one cannot typically borrow in the capital market to finance investment in human capital. Banks are perfectly happy to lend to anyone on the strength of a collateral but in a non-slave economy we cannot place a lien on our future earning power; hence, we can offer no collateral to a bank to secure a loan on our own education. Consequently, commercial banks are unwilling to finance the personal cost of higher education even at exorbitant rates of interest. Thus, the finance of education in non-slave capitalist economy represents a genuine case of "market failure", that is, an inability of the market mechanism to produce optimal results under any and all circumstances. There is, therefore, a clear argument either for a government-sponsored loans scheme or for a scheme operated by private banks with the loans secured against default by the government.

The ideal student loans scheme is one in which the repayment of the loan is income-related, that is, graduates pay a surtax throughout their working lives of 2-3 per cent of income earned. Thus, successful graduates end up paying back more than the costs of their own higher education thereby financing the education of some female graduates who fail to take up employment after graduation. The advantages of such an ideal scheme is that repayment is automatic, lowering collection costs and minimizing the default rate, and female graduates do not enter marriage with a "negative dowry". Characteristically, however, this is not the sort of loans scheme that most countries have adopted. Income-related loans scheme are confined to Sweden and some private American universities and most governments around the world insist instead that student loans should be treated like a personal loan that is repayable in five or ten years after graduation. The result is that default rates run at 10-20 per cent of loans made, the costs of collecting repayments is fairly high, female graduates do carry a "negative dowry", and a good deal of resentment is built up against the scheme on the part of its beneficiaries. It is not easy to account for the failure to implement income-related student loans except on political grounds, reflecting a puritanical attitude to educational loans of any kind on the part of legislators and government officials.

Virtually all countries in both the First and Third World combine some sort of loans scheme with one or another variety of outright grants to assist students in financing their living expenses. Since the argument for grants is one of equity, grants ought to be strictly means-tested, thus, sustaining the doctrine that students are somehow entitled to free higher education and to partly free maintenance while studying. Even if one were to swallow this particular version of the doctrine of "natural rights", the effects of outright grants on the efficiency with which students pursue higher education is almost always unfortunate. Anything available for nothing is little valued and higher education, available at the expense of taxpayers who are less well off than the student eventually will be, is apt to be squandered. In other words, the only merit of grants is to enable poor students to take up higher education; hence, grants ought always to be stringently means-tested, such that they become available only to the poorest of students.

Summing up, we may conclude that the ideal system of public subsidies to higher education would consist of: (1) a minimum level of tuition fees that would cover at least some of the real costs of educating students; (2) the remainder of tuition costs to be financed with the aid of vouchers issued to students which they could cash at any university of their choice (adding to the value of the voucher in countries that have private universities); (3) a system of maintenance grants, which are stringently means-tested in relation to parental income; and (4) a system of income-contingent student loans to finance tuition fees and living expenses repayable via a "graduate tax".

Conclusions

It was argued earlier that higher education in developing countries is relatively expanded, in relation to primary and secondary education. Clearly, there is no analogy for this sort of argument in developed countries for the simple reason that universal primary education and mass secondary education have been achieved in every country of the First World. On the other hand, there is also no compelling case for the expansion of higher education in the First World. Any expansion of higher education would involve an increase in public subsidies to higher education and such subsidies are only economically justified if higher education generates substantial "externalities". We have argued that it is plausible to assume that these externalities are positive but it is impossible to demonstrate that they are large; all attempts to measure the magnitude of the external benefits of higher education have so far failed. Hence, it is difficult to make out a compelling case for any public support of higher education, even more so, for an increase in the level of existing support. Thus, in respect to the volume of public spending on higher education a skeptical attitude to any radical alteration in the *status quo* is warranted by both fundamental economic arguments and the empirical evidence on the relationship between higher education and economic growth.

It is in the area of the finance of higher education, the manner in which public funds spent on higher education are disposed of, that economists have much to say which casts doubt on the *status quo*. There is hardly a country in the world that would not be well advised radically to overhaul its system of higher education finance so as to make it conform closer to what are, after all rather, elementary principles of equity and efficiency. Higher education is inordinately expensive and hence, every mode of subsidizing higher education ought to be designed to make both students and institutions cost-conscious, while at the same time ensuring that public support is genuinely confined to poor students and not as, at the present, dispensed to middle class students on the spurious ground that everyone is entitled to "free" higher education.

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Global Learning: Concept and Applications

Ed W. Ploman

A report to the Club of Rome entitled "*No Limits to Learning*", 1979, focused on innovative and integrated learning. Set against the background of the "world problematique as a human challenge", this approach to learning is based on two key concepts. Participatory learning would create solidarity in space: the aim is to foster participation in the learning and information-sharing processes at all social levels and ages. Anticipatory learning is seen as promoting solidarity in time, through anticipation as the capacity to face new - often unprecedented - situations and create new alternatives where few or none existed. The report also mentions the concept of "societal learning" with the warning that the link to individual learning is not well established.

The importance of such new approaches can best be seen against traditional concepts. Traditionally, at least in the West, learning was conceived in narrow, anthropocentric terms as being a characteristic capacity of the human species in contrast to animals and individuals.

New scientific and cultural approaches have gone beyond these facile and self-serving assumptions. Not only has learning proven to be an inherent characteristic of animal behaviour: concepts such as information transfer and learning are, in advanced scientific theory, applied generally to open systems, from cells to computers. In this perspective, learning emerges in what appears as a striking feature of evolutionary history. The operation of phylogenesis created improvements in organic adaptability to the level of generating learning organisms. Biological organisms function as learning systems and biological evolution as a stochastic learning process. In the human species, the learning process has reached another level at which learning becomes socialized, therefore, no longer a purely stochastic but also a conscious and goal-oriented process. In this socialized process, learning takes place both at the level of the individual and the groups and other social entities. Thus, social learning subsumes both socialized learning of individuals and social system learning. Social learning is obviously directed towards self-maintenance of individuals and groups. Both frequently encounter situations in which predetermined forms of adaptation are inadequate and they then display a unique component of social learning: behaviour directed at changing behaviour.

In this perspective, anthropology has always been concerned with a wide approach to learning: since all culture is learned, culture has a learning dimension and can well be conceived as a learning process. The link to cultural and socio-economic development becomes clearer. The goal of development is a change of attitudes and behaviour and consequently, development can fruitfully be approached as a learning process. There has been, in development thinking, a change of focus towards a recognition that learning is a fundamental process in what individuals, as well as groups, institutions and societies do - or not do - as the case may be. The Indonesian development thinker Soedjatmoko has even analyzed the entire development process as primarily a learning process. (Soedjatmoko, 1985)

This approach to social learning is not an isolated or unique phenomenon. Recent developments in other fields move towards similar approaches although terminology and emphasis vary. Examples are paradigms and approaches in science history (Kuhn), philosophy (process philosophy and evolutionary epistemology), general systems theory (van Bertalanffy, Boulding, *et al.*), decision and organisation theory, sociology, management studies and cognitive sciences. (Varela)

The global learning perspective is also related to recent emerging scientific paradigms which in different disciplines concern the nature and behaviour of complex systems, whether natural or social or even man-made "artifacts" (e.g. chaos studies). A major theme in these new approaches emphasizes the emergence of self-organisation, auto-poeisis, and autonomy as a characteristic of complex systems, all being processes that include learning, system behaviour and self-generation of meaning.

This approach to learning is holistic and global in its emphasis on all-inclusive process. This is one dimension of the multi-dimensional concept "global". In addition to the linkage of global to the learning process, global also refers to the world, to the total natural and social environment. Global thus goes beyond traditional concepts as international, which strictly speaking denotes no more than relations between nations, mainly nation-states. Global in this sense comes closer to worldwide or planetary.

As implied in the expression itself, the focus of global learning is on global issues, as they affect all societies and all levels of society. The state of the world is such that lists of global issues are legion and also confusedly contradictory in the explanations given and solutions, if any, proposed. We could do worse than to use as a starting point the UNU Charter which speaks of "pressing global problems of human survival, development and welfare".

The urgency is caused not only by the obvious dangers to these three basic goals but also from the emerging sense that the world today is facing not only difficult rearrangements of political, economic and ecological priorities, but a full-scale civilisational change. The challenge to learning is, thus, the challenge of learning how to cope with a rapidly changing set of circumstances that touches every facet of society.

Pressing global problems also demonstrate the need for global learning as the search for a common ground and understanding in a situation of increasing interdependence, thus, increasing complexity and a dangerous paradox of simultaneous cognitive homogenization and fragmentation. In all countries, the tendency is to tackle each problem in isolation. Analysis of issues tends to be uni-dimensional when global issues by their very nature are multi-dimensional and interlocking. The development of the required global learning strategies, therefore, faces another and double challenge - to adopt both a horizontal and vertical approach. The horizontal approach means integrating knowledge across disciplines, ideologies and cultures and uniting scientific, professional and experiential knowledge; the vertical approach requires cutting through and integrating problems at various levels - local, national, regional, international, planetary. How, for instance, should we, in this perspective, make local, indigenous views and values compatible with global outlooks and universal values? The well-known admonition: "*think globally, act locally*", is not enough. Thinking, as well as action, will have to encompass all relevant levels.

II. APPROACHES AND GLOBAL LEARNING

1. Assumptions about Global Learning

The introduction has already pointed to a number of assumptions about global learning. In this section, assumptions that can contribute to clarify the characteristics of global learning will be discussed.

A. In relation to traditional concepts, such as education and training, learning is both wider and deeper while still encompassing access to both sets of experience - among many others.

Global learning goes beyond traditionally-conceived limits - over time, over space, over context. Over time, global learning is not linked to a specific period in the life of an individual, institution or society. Learning is a continuous, permanent activity. The idea of anticipatory learning carries a strong element turned towards the future complemented by learning derived from the past, drawing lessons from past successes and failures. The wealth of traditional knowledge - be it medicine, environmentally-adapted and energy-conserving architecture or methods of conflict resolution - is like the wealth of genetic diversity that still exists in our environment. Both forms part of our common heritage, necessary in the search for valid solutions to current problems and for keeping options open for future generations. In addition, global learning has to be set in the context of different time frames: government and television are characterized by short time spans, economic cycles and libraries represent larger ones, while environmental and ecological time spans stretch over generations, even centuries and millennia.

Over space, global learning implies a world perspective beyond merely the international paradigm. Here the perspective from outer space is relevant: the concept of spaceship Earth which combines the image of planet earth as "one world" with the recognition of the need for planetary management. Since the framework is planetary, the focus is on issues that are global also in the sense that they affect all peoples and communities, even all life forms on earth, and ultimately, the life-supporting capacity of this planet.

Thus, global learning implies a holistic approach: the total natural and social environment provides both context and content of global learning. Learning is mediated through the natural and man-made shaping of the world, by all socio-cultural processes and products: languages, tools and cities, values, human relations, rites, ceremonies, art, war, customs and laws, images of the world - to positive or negative effect.

Seen in more structured terms, major systems that make up the social environment - religion, economy, government, military, mass media, serve, in addition to their overt primary function, also as learning systems. In the present context, the function of law as a learning system is crucial. Generally, law is not discussed in these terms; a traditional manner of approaching this issue is through analysis of the use of law to bring about social change.

B. The intellectual and conceptual context for global learning does not depend on current pressing issues only. The realities of the suddenly recognized economic, demographic and ecological interdependence represent a new crucial challenge to human development and welfare and even survival. Global learning must, therefore, necessarily draw upon the most advanced and progressive thinking available.

The most striking feature of the scientific-intellectual context for global learning is the reaction against the traditional models in Western-dominated thinking. There is first the emergence of new scientific paradigms, even of a new scientific rationality, or in the words of Ilya Prigogine, Nobel Laureate, "the opening up of a new theoretical space". The new scientific rationality that emerges in a number of disciplines goes beyond the traditional Western linear, deterministic and, finally, reductionist model of reality. In various disciplines, recent inquiries into the nature and behaviour complex systems and processes - natural and social - refuse deterministic, static reductionism and incorporate into scientific models of reality concepts such as randomness, openness, non-linearity, stochastic processes, and thus change, surprise, risk, discovery, creativity, and also new significance and meaning. This evolving new scientific rationality represents in itself a challenge to global learning. In addition, in the cognitive sciences, there emerge new theories that go beyond the Western tradition of "understanding as a mirror of nature" in favour of creative recognition, a concept of cognition as effective action. (see Varela, 1988, 1989) This approach would not only affirm emphasis on context but also provide guidelines for the development of conceptual tools required to advance the self-understanding of organisations as complex learning systems.

Whatever else, global learning would imply sensitivity to the different ways in which societies have organized and managed learning, stretching from the intensely personal guru-discipline relationship to the extensively impersonal flow of the mass media.

C. Like any other knowledge activity, global learning is embedded in the complex, rapidly changing and barely understood context that has been described variously as the advent of an information-oriented society, with a new dominant economic focus - the service economy - or the technocratic, computerized knowledge society. Whatever expressions are used, they point to a change in the nature of dominant technologies. The new electronically-based technologies differ from traditional industrial technology, primarily in that they no longer construct brutal configurations of matter and physical energy but directly draw upon scientific findings. They represent technologies of organisation and information. These technologies-telecommunications, computers, informatics, audio-visual systems - have rapidly pervaded modern society as a basic infrastructure in manufacturing and services, in public and private administration, in scientific work, in entertainment. The forms and modes for the generation, processing, presentation and distribution of information are multiplying, changing, converging. They affect patterns of perceiving and coding information. Through new communications and information systems we are changing both our ways of learning and our knowledge of the world.

Thus, global learning has to be seen in this new context, not only theoretically but also practically. It has to be capable of reaching audiences which are, at the same time, increasingly fragmented and increasingly homogeneous. All media and methods must be within the reach of global learning, as well as an appreciation of their strengths and weaknesses and their positive and negative effects as they are now deployed.

2. Values of Global Learning

Sensitivity to different styles evolved for the management of learning is but one example of how assumptions about global learning lead directly to questions of values, in a double sense: first, the values, ethical judgments that seem implied in or linked to the concept of global learning and, second, the related question of whether learning is itself a normative concept.

A global approach as it is formulated in the UNU Charter in terms of human survival, development and welfare obviously expresses a set of positive values. Thus, what we should be concerned with is a search for an "ethics of human survival", for ethical systems "that are relevant to the crowded, confused, hungry, rapidly changing and interdependent world we live in". (Soedjatmoko, 1984)

The state of the world makes it obvious that we have not yet managed to evolve a global morality. There is an obvious requirement not to accept poverty and violence as solutions to problems. There is the ethically more difficult question of how to provide a balance between the specific and the universal, or between competing claims at exclusive universal competence (as is clearly shown by the Salman Rushdie case). Should mutual tolerance then be one of the goals as much as one of the outer limits of learning?

There are additional moral problems to global problems - and to global learning. One concerns the time dimension: never before have the consequences of human action - or inaction - presented such a heavy weight on future generations and societies. Thus, our responsibility is not only to the present but also to future generations. Another moral concern is responsibility in spatial terms: decisions reached on one side of the globe very quickly affect, for good or evil, populations on the other side. Thus, these extended dimensions in space and time carry their own moral imperatives.

The concept of social learning also carries ethical imperatives. In an evolutionary perspective, it seems an accepted idea that survival and other basic drives towards self-organisation are better served by adaptability than by adaptation; that is, by a highly developed learning capacity. The biologically acquired learning faculty which has developed into the process called social learning concerns, however, are not only maintenance, but also growth, development.

> "It can be hypothesized that in the long run it is not enough for social systems to amplify man's behavioural capacity. They must take as their proper role the amplification of the individual himself. The higher order goal is that consistent with, and fundamental to the evolutionary process is the creation of meaning - providing the framework for the development of human potential." (Dunn, 1971, p. 185)

It is significant that conclusions reached in recent scientific work on complex systems and systems complexity also concern meaning, in the sense of "self-creation of meaning" being one result of complex system behaviour.

It must not be overlooked, however, that learning can be "negative" as much as "positive". There are many kinds of negative learning - whether by individuals, groups, institutions or societies. Examples, past and present, abound. The need for unlearning old behaviour patterns is obvious if we are to ensure both survival and welfare, not only for some members of the human race but for all, and not only for humans but also for other life forms with which we share this planet.

3. Global Learning: Purposes, Intentions and Goals

Some of the values linked to global learning do in fact also act as intentions, purposes of global learning. In its most succinct form, the goal of global learning is to facilitate learning about global processes and global issues, learning to understand them and act accordingly. In this perspective, global learning appears as both an individual and societal response to current global issues.

This remains too general. To achieve this overriding goal, global learning would imply enhancement of the capacity for innovation, improvisation and creativity; preparation to deal with change, risk, complexity and interdependence - economic, demographic and ecological. This, in fact, would in most cases imply an upsetting and difficult process of relearning, even of unlearning reductionist but apparently secure simplicity as a way of avoiding the complexity of reality. To give but one example: the need for the rich North to unlearn its refusal to do anything decisive about poverty, hunger and deprivation in the South within the framework of what the OECD calls the "two-track world economy".

Good intentions, elevated purpose are obviously not enough. Global learning can also be approached from another angle: analysis of failure of global learning, in particular the failure of learning how to manage global issues. In this perspective, global learning will have to be set against not only expectations but also declared intentions and attendant action, or lack thereof.

It is a basic fact that all stated intentions to the contrary, we have not learned - not been able to and not wanted to - particularly how to deal with international poverty, most intolerably demonstrated in the African crises. Nor have we learned how to manage humanely a world economy, except by the rich cynically accepting a two-track economy, within and among countries. We have not learned how to base economic growth on the safeguard of environmental and social sustainability. "And what capacity have we learned to cope with the situation at the end of this century, with another two billion people crowded into a shrinking global village already beset by social erosion, violence, hunger, poverty, environmental deterioration, ungovernable mega-cities and threats to our survival not only from earth but also from space?" (Soedjatmoko, 1984)

Global learning failures point to global learning needs. Admittedly, there is a need to learn how to cope with specific issues in specific contexts. Even more, there is a need at a more general level, to learn how to understand and manage complex, interlocking systems and processes that are open to change and marked by instability, risk, unpredictability - and freedom. We need to learn how to manage situations in which facts are often uncertain, opinions divided, values in dispute, decisions urgent and where action - or inaction - might result in long-term or even irreversible effects.

Approaches to knowledge and learning are now seen to vary not only with disciplines and with time but also with culture. There is a growing recognition of the interaction between the questions produced by a culture and the range of solutions that can be offered in that culture. This new openness, the still modest but promising renunciation of claims at exclusive competence for a particular rationality provide an opening: the recognition of learning how to cope with global issues. There is, thus, a need to go beyond the traditional Western "either-or" to encompass the kind of "both-and" strongly expressed in the yin-yang symbolism.

This approach is valid also for the future development of international law. Since international environmental law as a tool to cope with global change will require not only adherence, but also understanding and implementation in all countries and cultures, there is a need to broaden the philosophical and conceptual bases of international law. Major legal systems of the world should be seen as resources for this development since none of the existing systems by itself will be capable of achieving the required results.

III. GLOBAL LEARNING: FACILITATION AND OBSTACLES

Essential for global learning is the impact in different situations and different cultures of factors, such as permission to learn, encouragement to learn, direction and mode of learning, preventing or forbidding certain learning and learning outcomes. Relevant questions include: who is learning what, under what conditions, towards what objectives, and at what and whose expense?

We have already mentioned some of the current learning needs, with explicit and implicit reference to the societal requirement to facilitate such learning in support of, *inter alia*, environmental policies and practices designed to introduce adaptive and preventive measures in response to global change. This perspective opens a series of difficult and controversial questions.

It would go beyond these reflections even to try a comprehensive review. We shall, therefore, focus on certain issues that have a clear legal dimension, nationally and internationally, and that require consideration in a different perspective than has been the case until now.

1. New Media

In this perspective, a set of socio-cultural activities become crucial, those that concern the means, methods and modes for information handling - generation, processing, storage, transfer, access and dissemination. While there exists a certain societal competence in dealing with traditional media, such as the written and printed word, traditional performance of dramatic or musical works, there is confusion everywhere about how to deal with new media, such as television, video, high speed data systems as well as new technologies -

microwave, cable, satellites, computers - which tend towards technical convergence of different forms of expression and transmission. One proof of the current confusion is the constant change of national legislation everywhere, which often appears as a desperate attempt to catch up with technical novelty and cultural change. The result, at both national and international levels, is legislation that risks being "incompetent, inconsistent, incompatible and inefficient". (Chief Justice Michael Kirby) The conflicts between political, economic and cultural considerations largely remains unsolved. To give but one example: in light of the recognized need for changing practices that satisfy environmental requirements, the required learning or rather re-learning at all levels of society make it necessary to use all available means for the information, training and learning required. A basic question then is: can society afford not to use a medium like television for this purpose? There are splendid isolated examples of the use of television for global learning ranging from documentaries on global issues to Live Band Aid as a sort of global solidarity happening. With the increasing trend of reducing television to no more than a commodity-producing industry, there are urgent questions about the emphasis in much television programming on behaviour patterns that go directly against the need for new conduct in respect of such global issues as environmental protection, energy conservation, development needs. The question, therefore, is whether society can avoid grappling with the problem of priorities between claims for "free flow" of entertainment and advertising and environmental requirements.

2. The "Public" and the "Private"

In recent years, there have occurred still barely understood changes in the conception - and in practice - of what properly belongs to the public sphere and what to the private sphere, and thus changes in the relationship between the private and the public domain. Activities that traditionally were assigned to the private sphere have become issues in the public domain. One striking example is reproductive behaviour, and associated family and personal relationships. These have traditionally been anchored in the private sphere. A series of profound and simultaneous, socio-economic and cultural changes have catapulted the processes of biological reproduction into the public sphere. A similar development has taken place in respect of economic or social behaviour with major environmental effects. The need for increasing environmental legislation is one proof that certain activities that previously were managed in the private sphere through decision by individuals and enterprises can no longer be left to private initiative except under public scrutiny and accountability.

There has also been a movement in the opposite direction for which the expression "privatisation" is often used as a shorthand indication to cover a range of phenomena including de-nationalization, de-regulation, commercialization and commodification. The current trend of privatization based on ideology or economic pragmatism has, as theory and practice, also hit areas of immediate concern to global learning ventures. A basic issue would be: what are the effects - facilitative or hindering - of moving technology and information, as well as access to both, from the public to the private sphere?

It is clear that global learning requires wide and open access to information and knowledge, and the means of access to both. While there has always existed an unresolved tension between "free flow of information" and intellectual property rights, the situation has changed radically under the double influence of new technologies and new, wide claims for proprietary rights of different kinds. Thus, difficult issues have arisen in the scientific field which have succinctly been described in the title of a recent book, Science as a Commodity: Threats to the Open Community of Scholars. Thus, in the context of global learning, there is a need to consider questions such as: will an increase in private funding of research lead to a decrease in the volume and type of knowledge that reaches scientists, policy makers and the public? If indeed whole sectors of education and training are to be removed from the public domain into private operation, how will intellectual exchanges and academic development take place? (See Sargant, 1989) Another but similar trend which has not been given sufficient attention is the increasing commercialization of publicly-produced information, paid for by public means which was previously made available on an open and non-discriminatory basis.

These trends must be set in the context of control of information and knowledge, whether this control is exercised by public authorities or private enterprises. It is a tricky field because it isideologically loaded. It has, however, taken on a new sense of urgency through the advent of new communication and information systems. Particularly through the convergence of computer and telecommunication systems these problems have become pervasive, awkward and evolved mainly outside of public accountability.

Thus, a basic question about privatization is whether or not it would represent an obstacle to global learning. Privatization would be, in one perspective, a factor in a series of potential obstacles to global learning which might arise from a range of situations and conditions, from the cultural via institutional-legal rules and socio-economic trends to psychological factors.

There exists abundant information on various aspects of this complex of problems: on obstacles to innovation and the dissemination of innovation, on obstacles to the transfer and acceptance of information, on the simultaneous phenomena of information overload and under-use. However, as far as is known, these findings have never been analyzed in a coherent fashion from a global learning perspective.

In addition to phenomena which appear obvious and relatively easy to understand, there are other more subtle practices which might constitute obstacles to global learning. One such practice is the ancient phenomenon of the "professionalisation" of knowledge which in our days has degenerated into the reign of the expert and the descent on developing countries of instant experts from the North.

III. CONTENT OF GLOBAL LEARNING

To many observers, global learning seems to remain vague and somewhat unfocused when discussed in the abstract. In real life, global learning does not only represent an intellectual framework of perspective: it is linked to concrete purposes and embedded in specific context. Thus, global learning is also learning about something. It is to the content of global learning that we will now turn.

First, though, some remarks on the specific context represented by different social levels and needs. It seems obvious, but there is a constant need to repeat that the same phenomenon will not have the same impact in different socio-cultural settings. It is one thing to add still another television channel in an already TV-saturated environment; quite another to introduce television in a setting where there is little, if any, access to modern media. In the UNU context, global learning activities have concerned, at one end of the scale, particularly learning at the most urgent and neglected level: how can scientific information relevant to their survival and basic quality of life be communicated to disfavoured groups in developing countries, in a timely fashion, in a manner and form that makes sense to them and, most importantly, on subjects of their choice? At the other end of the scale, studies have concerned the manner in which learning about global issues can contribute to ameliorate a situation in which higher education is often seen as not addressing "current human problems".

The basic thrust is that global learning concerns global issues as they work themselves out at different levels of society, in terms of both needs and opportunities. The following discussion of possible issue areas that would be the content of global learning activities is based on considerations concerning proposals for projects and action in this field.

1. Development

Perhaps the most obvious and one of the most urgent global learning concerns is development. As mentioned earlier, development has clear learning dimension which has often been perceived as no more than the education and training of people to become fit for service as producers and consumers in the image of what has happened in the industrialized world. It is in this context that the concept of "human resource development" becomes problematique: resources are means to an end while the basic current concept is that human beings should be the subjects of development, not the objects.

The form of learning that lies at the heart of development is the "rather elusive process" of social learning in the global sense as used here. As to what needs to be learned, the content of this learning process, Soedjatmoko has indicated various sets of goals, each one by implication pointing to failures in development thinking and practice. These sets of goals include:

- individual and collective enhancement of society's ability to adjust to change and direct change - in the face of such phenomena as new demographic patterns, technologies, modes of production, stages of political consciousness.

- capacity to develop policies and attitudes that can come to grips with structural impediments to change;

- the need, morally and physically, to deal effectively with poverty as symptomatic of a process of economic and environmental decay, often compounded by social and political instability;

- the willingness to socialize and bring into the national mainstream hitherto marginalized groups without raising, unacceptably, levels of social tension; this implies learning how to motivate and release the energies of those whom Gandhi called "the last, the least, the lowest and the lost";

- organising for new purposes the adjustment of traditional institutions to serve these needs;
- new lessons in the management of development activities: government bureaucracies and institutions must learn how to adjust to the required systems of self-management and self-reliance, as well as to cope with economic interdependence, also how to develop skills at consensus-making in the context of pluralism and deal with the violence of emerging groups who perceive their aspirations not being accommodated.
- ability of people to live together in increasingly higher population densities; in this perspective to find new ways to make urban communities function, concerning ourselves not only how these mega-cities can be assured of their food, energy and housing needs but also with the ways in which human communities of such size and density can function effectively and with civility, avoiding violent conflict and retaining their creativity;
- capacity to meet the learning needs of development through an unprecedented flow of information into the villages and urban neighborhoods; this also implies to develop in individuals and communities a capacity for continuous learning, for creative impulses and critical assessment.

These points have been mentioned in some detail, since in many respects they are applicable to subject matters such as global change.

It is clear that the kind of learning required involves not only individuals at all social levels over their life span but also major institutions in society - be they governmental or nongovernmental - including building enterprises, business enterprises, labour unions, the military, professional associations, women's movements, grassroots and environmental groups. Learning for the purposes of development implies learning by individuals, communities, societies, and in the final count, by the human species.

2. Environment

Concerns about the environment are not new but only in recent years have ecological crises reached such pervasive, disruptive and potentially disastrous levels that "suddenly the world itself has become a world issue". Thus, today's environmental problems are closely interlinked, planetary in scale and, in a literal sense, deadly serious.

However, more important than the list of issues is their interlinkage, what they amount to in the aggregate. The Brundtland Commission has aptly used the image of our earth seen from space as an entry point: "From space we see a small and fragile ball, dominated not by human activity and edifice, but by a pattern of clouds, oceans, greenery and soils. Humanity's inability to fit its doings into that pattern is changing planetary systems, fundamentally. Many such changes are accompanied by life-threatening hazards. This new reality, from which there is no escape, must be recognized - and managed." (World Commission on Environment and Development, 1987, p. 1)

As a complement from the national level, a recent study of resources, population and the Philippines' future came to the following conclusion: "The grim prospect of a deepening subsistence crisis throws a long shadow over Philippine socio-economic and political development into the next century...Without effective policies to slow population growth, broaden access to land and other natural resources, and stem environmental degradation, these problems could contribute to increased social unrest and possibly political violence." (Porter and Ganapin, 1989)

Social unrest for reasons of environmental degradation, resource depletion and social injustice has already occurred in various countries. Analysts also foresee that if present trends continue unchecked, environmental problems might well become major reasons for international conflict, and even war.

V. CONCLUSION

In summary terms then, what is required is change in thinking, in ways of doing and organising things. While little so far has been said about the global learning required, it is obvious that the learning dimension will be crucial if we are to achieve:

- the necessary integration of population, environment and development policies;
- change beyond such immature attitude as growth for growth's sake or hiding behind "technological fixes";
- re-thinking economics;
- change in attitudes towards nature and the interrelationship between man and nature.

To take but two examples. There seems to be increasing agreement about the need for a thorough-going transformation of technologies of production and consumption, but very little debate on what this actually might mean. If environmental factors must be integrated into the design of our energy, transportation and other systems it might well mean inner depth changes in the provision of private and public transport; energy might have to be provided at its real price; the inevitable industrialisation for the Third World will take place with polluting technology invented in and disseminated by the industrialized North.

The other example concerns international cooperation which will have to take place at hitherto unknown levels. Unilateral decisions by countries on any matter that might affect the environment will probably have to be subject to negotiation and agreement. This means there is a need to upgrade international environmental agencies to work out new international treaties and the integration of environmental concerns into trade and other rules governing international economic relations.

And finally, there is a moral and ethical dimension - a need to re-think humanity's global obligations. But even more: "To act without rapacity, to use knowledge with wisdom, to respect interdependence, to operate without hubris and greed are not simply moral imperatives. They are an accurate scientific description of the means of survival. It is this compelling force of fact that may, I think, control our separatist ambitions before the overturn of our planetary life." Thus, Barbara Ward shortly before her untimely death.

DISTANCE EDUCATION AND THE NEW TECHNOLOGIES: A NEW ADVENTURE IN KNOWLEDGE AND COMMUNICATION

Jean-Marc Pottiez[1]

Distance education (*Enseignement à distance* in French) or distance learning is a new adventure, because it deals with transmission of knowledge, the learning process with a stress on individualization, the transformation of the teaching and communication process, and, ultimately, the transformation of so-called 'old' knowledge and the creation of "new" knowledge, as well as new methodologies, new strategies, or new technologies in teaching, learning and communication.

In the world today nearly one student out of fifty is associated to a distance education system - that is to say 20 million distance learners out of 900 million youths or adults.

To measure the impact of distance education and distance learning and see clearly all its implications for us today, one should turn back and consider its evolution from the very beginning.

I. DISTANCE LEARNING SINCE THE STONE AGE

We are so good at surfing on our technological waves, and so proud of our expertise and inventiveness, that we tend to forget that, since the creation of schools and the institutionalization of schooling, a great number and variety of methods of knowledge transmission and training were already in existence in former times. In fact, 'new', even 'revolutionary' ways of teaching and learning lay in the treasure chest of our past and are often neglected if they are not forgotten purely and simply. Indeed, as usual, the future does exist - in part - in our past.

The old pace and time were very much utilized and integrated in the teaching and learning process as they are today in this relatively new technique which is called 'distance education'. Our ancestors were utilizing mediums (not yet "media", i.e., persons and not yet hardware and software) to amplify and propagate knowledge, either publicly, sometimes on considerable distance, or esoterically, in small circles. Their teaching was applied to all forms of knowledge considered as rare, and even precious.

In France, for instance, learned people and students, during the Middle Ages, were used to corresponding and circulating in a very active manner. In the field of professional training, the system called "*compagnonnage*" called upon students and trainees to tour France and learn their trade or art from the best masters of the time. In fact this system was based on different values than today, particularly on the value given to work, money and wages. A reflection on those so-called 'ancient' values is worth taking into account when laying out the blueprint of the university or the education system of the 21st century.

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[1] This is an updated, modified and condensed version of the author's contribution to a collective research work published in 1988 by the Japanese National Institute for Multi-media Education (NIME) and entitled 'New Trends in Distance Education in the World'.

In those former times, the "companions" or students considered as normal practice that they should not be paid, but, on the contrary, they should pay or work for their masters free and without any wages for receiving knowledge. Other forms of dissemination of knowledge in modern times, besides printed materials, newspapers, almanacs, public lectures, or even sermons in churches, were the door-to-door sale of books from a collection known as the *bibliothèque bleue*; the wide use of slide or plate projector called *lanterne magique*, with the mailing of the plates and group projection; the use of cinema with the Freinet movement. In the 19th century, and corresponding to industrialization and the discovery of the world through "colonization", French adults did begin to feel the need to develop and enrich their own education because they realize that the gap is becoming wider between the education they received and the new knowledge and training they need.

This is true today, but the difference is that end-users outside the normal education system want now to influence and play and active role in the design and production of the knowledge they need - and the new technologies give the opportunity to do so. Therefore, a market research or at least some form of involvement of the new end-users of education and training - seems necessary if any education reform should not miss the target and end up, once again, into a drawer. This kind of research would balance the needs for an institutional and a didactic form of education, for a closed and open educational system.

II. EVOLUTION OF DISTANCE LEARNING: FROM STENOGRAPHY TO BOTH MASS AND INDIVIDUALIZED EDUCATION

As we all know, the first idea of "distance learning" or distance education was conceived by Isaac Pitman, an Englishman, who invented a shorthand named after him. Since 1840 distance education developed in three different and consecutive stages. First, it was limited to a private, individual form of teaching; second, governments and public institutions tried to use distance education for strengthening education and school attendance; third, distance education contributed to the economic and social mutations of a country.

This evolution concerns only the developed countries. However, because they have to transform their society while advancing, at the same time, on the economy, developing countries often start from the third stage; this is perhaps one of the main reason when the 'nurturing'- slow sort of process which is vital to education is passed by or sacrificed by the developing countries, thus creating problems. The same for the attempt to graft democracy with too much haste and sometimes forceful attempts. Europeans know this by experience since Europe was one of the bloodiest battleground of the world, but also one with the most diverse mosaic in terms of culture and education systems.

From 1840 distance education was somewhat limited to private individual education, with particular emphasis on the teaching of languages or the arts, particularly in Great Britain, Germany and the Scandinavian countries.

In France, distance education is provided by various public and private institutions. Quite naturally, tuition fees and other costs can vary greatly between those organisations. Distance education is guaranteed and regulated by the law of 12 July 1971. All institutions involved in distance education are under the control of the Ministry of Education.

1. HISTORICAL BACKGROUND

In France, as in other countries, distance education can be explained by the interaction of various social actors - cultural, economic and socio-political contexts; the evolution of education in relation to the teaching and training of children, youth and adults (conceptions, methodologies and ideologies); the use of new technologies or media as teaching, training and mass communication tools.

France did not have any interest in distance learning before 1939, only at a time when correspondence and radio courses for primary and secondary levels were established. At that time France had to cope with a problem of national magnitude because of the war, i.e., how to educate tens of thousands of young French who have been evacuated from the German occupied territories in the North and East of France to the South.

When the Public Instruction Ministry in December 1939, created the *Service d'enseignement par correspondance*, the main objective was to respond to the educational needs of the conscript members of the French Army. This *Service* then change names and since then, enjoyed exponential growth.

At that time, adults were not targeted. It was primarily to support secondary school students who were forced to leave school. At the end of World War II, as mentioned earlier, new end-users appeared, like sick persons, unemployed youth (particularly young females) who could not enrol in a regular educational institution either because of their health condition or they work for a living. The situation, however, changed radically with the economic recession which followed the growth period, for individual or collective demand for education through distance learning was amplified and diversified. This demand was reinforced by all those who were dissatisfied and more or less ignored or abandoned the conventional and formal education system which, in fact, has grown too rapidly.

This is quite different from the situation in Japan, for instance, where educational and training needs are met at various levels in formal education as well as vocational training; and where distance learning appears more as a tool for refinement or enrichment.

The emergence of those new types of end-users in France did modify deeply the whole concept and methodology of distance learning, for they did not turn to distance learning because of "distance" or remoteness between them and the source of education but because of their physical, psychological or social handicaps.

2. Who are the users?

Distance education is ideal for reaching isolated end-users, particularly:

- people who cannot, for various reasons, have access to normal educational institutions;
- unemployed or wage earners who do so by rights granted to them by law under the programme of social promotion or continuing education or training;
- handicapped individuals;
- foreigners residing in and outside France who want to use the French educational system,

3. Distance Learning and the Economic and Social Mutations

In the aftermath of the Second World War, France, together with other industrialized countries, tried to utilize distance learning to respond to a growing demand from persons seeking jobs and employment. The first students were war veterans, invalids, sick persons, sailors, former prisoners, unemployed youth, and the aged.

From the '60s onward, there was a considerable demand in distance education from the new French-speaking independent countries and the developing world, particularly in the field of training educators and specialized personnel.

Since the '70s, distance education became more and more integrated in the teaching, training and learning processes, and thus contributed greatly to facilitate and accelerate the necessary economic and social mutations. It was supported by laws and regulations, which facilitate life-long education and training either during employment or between studies and employment. This legal support basis exists since 1970 in Japan, 1971 in France, 1973 in Italy, Belgium, and The Netherlands, 1974 in Switzerland and the Federal Republic of Germany.

The oil crisis of 1973 have greatly reinforced the need for vocational training. Today the trend in France as in the other European countries (much more than in Japan which has always taken better care of the training of its work force) is to educate and train not so much the unemployed, but much more the employed so as they remain competent and not be forced out of their work. In this sense, distance education does participate in the economic, social and cultural development of a nation; it facilitates its mutations and the homogenization process.

4. Universities and Distance Education

French universities are equipped with CTEs (*Centres de Télé-Enseignement Universitaires*). Those centres prepare their students to diplomas of the 1st and 2nd cycles. Free auditioners (*auditeurs libres*) or any student can follow the education given by the CTEs in order to complete their education, but they cannot obtain diplomas.

5. Other Public Institutions Involved in Distance Education

CNDP (*Centre National de Documentation Pédagogique*), or National Teaching Resource Centre: This governmental agency has a network of 27 regional centres, 77 local centres and 5 local educational documentation centres both in France and the French Caribbean. Its mission is to produce and disseminate educational materials using new technologies and new media, in order to contribute to education, vocational training and continuing education. It offers more than 600 educational materials in 16 mm film or video.

AFPA, in Colmar: specializes in technology and engineering.

CNPR (*Centre National de Promotion Rurale*), in Clermont-Ferrand: prepares one for agricultural administrative concourse.

Some programmes of the CNDP are broadcast by French TV (mainly the third channel, FR3) or by the French Radio (France-Misuque, in FM).

This broadcasting, as well as the general dissemination of CNDP materials, are reinforced by computer educational games available on the videotex Minitel network (3613, "Edutel" code).

However, one of the most important and active public institution involved in distance education is CNED (*Centre National d'Enseignement à Distance*).

6. Distance Education and Private Institutions

According to official sources, there are more than 116 private institutions providing distance education in France. They are as diverse as the needs and the tastes of their users. They offer education and training in languages (with emphasis on Celtic or Occitan languages); traditional techniques and handicraft, such as lace making or "*herboristerie*" (herb medicine); management; astrology; graphology; butchery; *charcuterie*(delicatessen), etc.

7. Continuing Education and Vocational Training: Organisation and Market

Because of the scare brought about by the specter of unemployment, and the need to preserve a skilled labour force, closer cooperation does exist now between all social partners, particularly between the Ministry of Education, the universities and the Under-State Secretariat for Continuing Education (*Sous-Secrétariat d'Etat à la Formation Permanente*).

After the enactment of the 1971 Law on Continuing Education, efforts have been made nation-wide and at all levels. In 1972 French universities created their own "missions", and then organized and offered full-fledged services.

A total of 77 higher learning institutions are involved in one way or another in the area of continuous education in France. Of this number, there are 74 universities or assimilated institutions - 68 universities, 3 university centres, 3 polytechnic national institutes and the *Institut des Sciences Politiques*, in Paris. Some other prestigious institutions like the Collège de

France, have been or are being engaged at one time or another in distance learning experiments.

The Market:

Like in all industrialized countries, the market for continuous education is extremely varied in its forms. It is created, as everyone knows, by the ongoing economic and social crisis. Decision and policy-makers usually pay more attention to the cost-benefit aspect of continuous education and training and their impacts on employment. In order to respond to the demand of the different end-users, this new type of education must be varied in its approach and strategy, as well as utilize the latest technologies and media, while new sources of funding must be found and secured.

To adapt to this new market, the traditional universities must change. They are encouraged and supported in their efforts by the State and the Ministry of Education and all the various political, social and economic partners.

French universities are now able to offer a flexible response to the specific and individual needs, for short or long periods of continuous education or training, with or without diplomas. The following needs are being met - vocational training; cultural and social education and training; education and training based on personal needs.

Furthermore, because of the impact of distance education on their own education, universities are rapidly changing. This is due to the utilization of new knowledge and forms of learning; the obligation to adapt education to the different needs of learners, as well as different rhythms of learning, and to more personalized form of education; the use of new technologies and new media for teaching, communication and interaction; the increasing stress on interdisciplinary and plurisciplinary education; the need for greater interaction among teachers, educators and students; confrontation and mutual enrichment of experiment and research; and last but not least - the need for better training of trainers.

8. New Needs and New Trends in Vocational Training

In France as in Europe in general, vocational or professional training is not as developed as it is in Japan, where companies in the private sector make great effort in this field since it is good investment and forms part of their experience and know-how. Nevertheless, the 1971 Law on Continuing Education in France has both institutionalized and developed vocational training in France. The main trends which emerged are the following:

- Quantitative and qualitative development of vocational training;
    - Selectivity: There is an increasing number of agencies, institutions and companies which tend to ignore standard training and prefer custom-tailored sort of training so as to serve better the needs and targets aimed at:

a. Individualization: In order to increase the efficiency of vocational training the materials and programmes stress individualisation and more interactive methods.

b. Scaling: Because of technological or organisational mutations, there is a need to implement training of groups or populations on a large scale in a relatively short time. This so-called "work site" policy is characterized by the creation of pedagogical support systems, such as video, transparencies, etc., which allow better homogeneity between training sessions conducted with different "animators" or supervisors; research on and production of tools, which spare the training animator or supervisor fastidious and repetitive tasks; and finally a more varied profile of training animators or supervisors who may be less specialized;

c. Research of new training tools, such as video, computer-assisted teaching or video disk, which can reinforce training and learning;

d. Research of new methodologies and strategies. In order to cut down costs and propagate more easily vocational training, methodologies and strategies are implemented, such as information campaigns, survey and study tours, etc.

Vocational training is now being extended to new potential end-users such as women, consumers, pensioners and retired persons, physically or mentally handicapped persons, youth, prison inmates, immigrants (an acute problem in most European countries), religious communities, etc. One must stress here that handicapped teachers and trainers from their homes can be used too; and this one is more proof that the new system of teaching does reach out to the hidden corners and talents of a society by using all talents and energies possible.

9. Funding and Support of Distance Education

Because of the costs of producing educational materials, and their dissemination through a variety of complex media and infrastructures, with the support of technicians and expert personnel, there are financial constraints to the development of distance education in France, as well as in the rest of the world.

Since 1950 funding and support of distance education are done according to several formulas. Some governments, for instance, subsidize existing private distance learning institutions to provide education that the public authorities could not provide without additional budget; this is what the Scandinavian countries did for immigrants and their children. Some other governments finance existing institutions so that they can expand their distance education. This is how, in France, a certain number of universities, like the ones in the eastern part (Nancy, Besançon and Dijon) combine their efforts and pool their technical expertise, equipment and facilities in order to form a radio, TV and computer network.

Governments in some other countries create or help to create institutions specialized in distance education, which are always closely associated with universities. This is the case of the "*Hoso Kyoiku Kaihatsu* Centre" or Foundation of the University of the Air in Japan.

Distance learning is not only attractive in terms of education and economic and social implications, it is also interesting for its cost-benefit ratio. Whereas, in traditional education, the more students exist, the more teachers must be paid and thus the costs are continuously on the rise. In distance education - although the technical costs to produce materials tend to be high, the more students are enrolling, the lesser the costs. In the British Open University, for instance, the break-even point is estimated at around 20,000 students.

The present efforts in Europe are targeted at lowering financial cost by using, whenever possible, more radio than TV and the transportation, re-grouping and tutoring costs of distance education (DE) users.

However, the main problems in Europe, as in the rest of the world, in the field of distance education are how to cope with the fast pace of technology, how to deal with the didactic aspect of distance learning, and how to give special training to teachers and trainers. Up to this date, the only country where a distance education diploma seem to exist to this date is Australia and is granted by the University of Adelaide. To try to convince teachers and trainers to relinquish partly the traditional 'face to face' form of education and involve in a new system of teaching, of interaction, reinforcement, monitoring and back-upping is not easy, for they think - rightly or wrongly - that this is a fundamental questioning of their role and status.

10. Trends and Markets

What are the trends in contemporary France which favours a didactic form of learning and training?

As in Japan and most developed countries, there is in France a strong demand - and a large market - for scientific literature and magazines. Ratings prove that TV or radio audiences wish an increase in the number of scientific feature magazines. "Quality circles" in the field of industry, or teamwork in other activities, do entice adults in engaging in new learning. This process of learning can also be reinforced in the area of entertainment, leisure, hobbies and games - particularly with the use of electronic games.

New technologies and new media, like TV, video and computers, create new concepts and new forms of education, knowledge and learning. The notion of "distance" in distance education, is a complex one since it has a dual meaning: distance in terms of space, distance in terms of time. This dual meaning does explain partly the powerful action and implication of distance education.

This explains also why experts and technicians, who play a decisive role in the design and delivery of distance education, now try to influence and even transform the classic type of education. The mediator or the communicator tends to modify the message. In distance education the teacher is no longer the keeper of the sacred treasure of knowledge: he is forced to work with the team, and thus change himself - or be questioned, lose his credibility, and finally be more and more marginalized. In this sense, a country like Japan where the sacrosanct system of the "*sensei*" is still very powerful, distance education can be one element of change and transformation - if the senseis are sensible enough to accept change.

In France, some new types of education and training would not even exist today if new technologies were not in existence and in use, such as the training of medical doctors in electronic diagnosis, particularly with blood diseases (one of the initiator is Jean Bernard). And curiously enough, this form of dissemination, education and training does correspond to the traditional form of teaching by a great master or by compagnonnage.

Like the new wave of sociologists which unfurled with the student protest movement in 1968, we are made witness today of the flowering of the "economics of education" which advocate the influence and even the control of end-users of distance education over "their" education, and finally on the whole system of classic education. Distance education does have many spilling over and all pervasive effects not only on education, but also on our daily lives, mentalities, behaviour, which are not yet fully researched. There is grate positive aspects in that trend but also negative ones as well, which need to be looked into. "*A la carte menu*" or "custom-tailored" types of education sound good and should be encouraged, however, students and learners or trainees in general must accept sometimes a not so palatable form of subjects or education in order to strengthen and enrich their education and culture.

It is worth noting in passing how such a conservative country like France is so active - and even fascinated - by toying with new technologies in everyday life in general and education in particular, whereas such a dynamic and technologically inventive country like Japan is somewhat conservative in the use of new technologies relating to intellectual or artistic endeavours. There seems still to be in Japan a *decalage*, i.e., both a gap and a delay between the production and use of hardware and software. Why so? This gap might correspond in part of the need the Japanese have for slower (and perhaps better) assimilation and integration of everything new into their traditional patterns of thought and behaviour.

11. Media and Networks

Like other countries, France utilizes the following media and networks:

a. The post and telecommunication system (which is still a monopoly since the 1789 revolution): French researchers are looking at new ways to utilize this old medium for training and teaching purposes.

b. The hertzian network: Utilization of the radio and TV media are well explored now. However, French experts are trying to mix these media with the others in order to enrich and reinforce interaction between the educators and the learners. One must also stress the fact that more and more radio or TV programmes are carrying and disseminating educational materials which are quite independent from the normal educational system and establishment, such as news and feature films, economic, scientific or stock exchange programmes, etc.

c. The telephone network: The French have now caught up and are equipped with a modern network. The telephone network is a gold mine in terms of interactive communication, for it can provide duplex or multiplex communications, audio conferences, direct contact and dialogue between the teachers and their students.

Facsimile is expanding rapidly and is cost-effective for education, feedback and interaction purposes.

Special mention should now be made of the videotex system Minitel. **Minitel** is a golden opportunity for educators and trainers since it is largely disseminated all over France and is extremely popular by comparison with the Japanese, British or American systems. The Japanese videotex system Captain is not yet able to gain popular appeal and with only 78,000 terminals, is fighting for survival. One plan is to transform into a videotex terminal Family Computer (FAMICON), a low-cost electronic game, into a cheaper and nationwide system. So successful is **Minitel** that France Telécom is planning to introduce a Minitel network and Minitel services in Japan.

Minitel is said to be the most advanced and profitable digital transmission network in the world; it might change not only the face of France but also the face of Europe. Its yearly growth rate is at an average of 50%, with about one million "free" terminals distributed every year. This year France Telécom expects to reach close to 7 million terminals. Minitel makes available 9,000 database services, a number which is growing almost every day.

This popularity and large dissemination of Minitel is certainly an advantage for its utilization in the field of education and training but Minitel does have some handicaps, too, among others, the small size of the screen, the slow pace of interaction between the student and the machine, the high cost of educational software or the lack of logistical reference.

d. The cable networks: By utilizing a "star" system, a cable network can be very useful for educational utilization, since it can propagate simultaneously and altogether pictures, sounds and data, on a two-way and interactive basis. However, France is very late in the development of its cable TV networks. One of the main reason is politics, for the central government as well as local authorities have always feared that cable TV might be controlled by the political opposition.

Today only four large cities benefit from experimental cable TV. Out of the 20 cable channels to be made available, one of them should be entirely utilized for educational purposes.

e. Computer-assisted education networks: (*Réseau d'enseignement assisté par ordinateur*, EAO): After some slowdown in its growth in 1975, those computer-assisted networks are a natural and valuable back-up system for personal computer users, for they reinforce both word-processing software and file and data management. But despite the efforts of the French government to develop an ambitious national programme of computer assisted education networks, the production costs of software (which require a good or excellent level of quality) are still too high.

How can one then combine and take the maximum advantage of all these new technologies and networks?

This important question is the subject of intense research in France as well as in the rest of the European Community, since it does have many implications not only on education and training, but also on the socio-economic and cultural mutations of all countries concerned.

12. France and the new technologies in education

Educational TV started in France in 1972 as recommended and supported by the 1971 law on continuing education, and was targeted for both teachers, to give them an opportunity to improve their knowledge, and adults who are looking for social promotion. But in the '80s in France as well as in other developed countries, this educational role of television was minimized and replaced by a recreational role. One had to wait for the advent and use of the computer in 1963 to stress again the educational contents of TV programmes.

Since then, in France as well as in Japan, the United States and other developed countries, all the wonders promised by those powerful TV and computer technologies have not entirely fulfilled our expectations. For what reasons? Because of a series of weaknesses, mishaps, blunders, which quite naturally should be assumed by us - the makers and users - rather than be on account of some deficiency on the part of the machines and technologies.

Technology in a way runs too fast for us to catch up and try to tame it. Technical experts who juggle with these new technologies do not communicate very well with them and the pace of technical development is so fast that experts themselves cannot cope with new knowledge. Their ability and ours as well, for assimilation is limited. Therefore, it is quite difficult to fully integrate our new technologies in our common bank of traditional and formal knowledge, a bank which is - in addition to being equipped with well-guarded safeguards and oversensitive alert systems - more often looks like a temple.

Another factor is the slow integration of new technologies such as video, cinema, photography or auto-documentation. Why so? Because, instead of building up an environment and a system which could make full use of those technologies, the French tended to "parachute" in schools technical wonders like computers without any initial preparation, that is, without creating an environment favourable to the use of these technological wonders. And, of course, the funny thing which happened was that children and students were faster in adapting to this newly parachuted technologies than the teachers.

Another reason is that too much focus is given to the relationship between the educator and the learners when these new technologies are used, whereas special care should be given preferably to "parasitic" interference phenomena such as the different cognitive rhythm and style of each learner, which depend more or less on personal, family or socio-cultural background - or even on the motivations, psychology, gender, age, ambition, career plan or social behaviour of the educators themselves.

One more reason in the difficulty to control, use and take full advantage of a technology is the kind of autonomy or independence any technology tend to show as soon as it is born. Any technology (we their "fathers" have learnt it the hard way more than often) tends always to look for its "ecological niche".

13. "Ecological Niches" of Technologies

For Jacques Perrault who is a specialist in Information and Communication Sciences and Adviser for Research and Innovation to the Director of CNED, one should always pay attention and care to the interaction between the message contents - especially in education - and the media. For him, as well as for some other French experts, each new tool or technology always creates its own kind of "ecological niche" - a metaphor first used by Thierry Gaudin.

This fact is bolstered by experience when a tool or technology comes to have some role or impact quite different from what was expected initially. This was the case, for instance, for the phonograph, the use of which was supposed to be limited to record the voices of those who were going to die. What about the "citizen band" which was intended to be shared and used by all citizens but was soon monopolized by truck drivers? As for the French videotex **Minitel**, its success and dissemination along lines totally unsuspected and unplanned (such as casual sex talk services) came as a surprise to its planners and initiators.

Integration Problems:

Media forms of teaching must always be integrated in an ensemble of learning activities and in different environments, as well as supported by constant pedagogical follow up. At the same time, one has to be aware of the limitations of any technology: one medium (books, television, radio, video, compact or laser disks) cannot assume and together ensure the whole teaching and learning processes. Because of methodological and strategic requirements one has to organise teaching in "module" form, and this teaching by module somehow interferes with the integration of modern technologies and media in the conventional form of teaching.

This integration difficulty is demonstrated, for example, by the near total failure of alphabetization programmes with the support of distance learning throughout the world.

Control Problem:

Even if integration is attempted, one cannot totally control the powerful and all-pervasive role of new technologies and new media in shaping up our physical as well as our mental landscape, and in influencing our social or individual mental structures. One should be reminded here of the various revolutions brought about by the use of fire, the invention of the wheel, the automobile, television or video. In this sense, distance education is going to spill over into many fields of our activities and not be concentrated only to education and training.

What can only be hopefully wished in using distance learning (as perhaps one should elsewhere) is to give as much, if not more, emphasis to horizontal communication than to the vertical one. The classic type of education has suffered too much and too often from the vertical dissemination of knowledge like the sacred manna through priests and prophets. But today one should not fall into the opposite excess, i.e., to have a fetish belief in our slave technologies and slave hardware. Distance education networks can be plugged into specialised networks for doctors, farmers, fishermen, the unemployed, etc. Networking, feedback, interaction, and exchange are part of the new passwords for our survival.

14. Computer-assisted Education

The social and cultural environment in France (and perhaps the mental structures in the land of Descartes, Pascal or Henri Poincaré) seem to facilitate the dissemination and use of computer technology. The ambitious government programme "*Informatique pour tous*", launched in 1985, had been easily and successfully implemented. The network is a big capacity professional computer backing up and supervising a network of micro computers. The present network include now three professional-type computers and the whole network is able to use BASIC, LOGO, or LSE.

About 160,000 micro computers are in use in public educational establishments in France, 11 million pupils and students have been initiated in computer technology. This programme facilitates also the access and use of computers in schools by the public at large. Among the most interesting French organisations which promote computer technology for use in education and training are the following:

ADI (Agence de l'Informatique);

CEMIRH (Centre mondial informatique et resource humaine);

CESTA (Centre d'études des systèmes et des technologies avancées);

CIREEL (Centre d'information et de recherche pour l'enseignement et l'emploi des langues);

INRP (Institut national de recherches pédagogiques).

15. Future Orientations of French Distance Education

Distance education in France could develop along the following three lines:

i. Development of exchanges and interaction in real time, and the possibility to have instant access to data stored at different places; those data access and utilization must be more convivial;

ii. Reinforcement of the individualization process in learning and training;

iii. Use of teamwork and work group whenever possible, which implicates the production of appropriate pedagogical materials and logistic systems.

However, and for some more time to come, it is the suppliers of technology - and not the educators or end-users - who are leading the game. One of the main reason is that demand in distance education is not yet strong enough to impose new norms, systems and hardware.

As for programmes and software production in distance education, a new structure and organisation should progressively make this concrete because of the need to cut down financial costs and improve quality.

Another future trend worth watching will the role that publicity sponsors will be willing or not to play.

On the technological front, the French are interested and concentrating their investments in the following: increasing data banks of more convivial access; standardisation of computer-assisted education systems and equipments, more powerful PCs, more implication and involvement of end-users, especially institutional ones; a Minitel system more suited to the needs of distance education and training (as planned by France Télécom); the full exploitation of cable television potential for DE.

What *à la carte* menu will be offered?

More and more educational services will be offered in the following areas:

- Basic learning and training with tuning up programmes: well identified end-users, and as great a number as possible will be served for alphabetization, French language, computation, etc.
- Secondary and university level education: documentary services will be emphasized;
- Vocational training: specific needs of large groups or populations will be identified and served, especially in "bureautique" (office automation), informatique, foreign languages, management, etc.
- Hobby: such as *bricolage* (do-it-yourself handicraft and activities, of which the French are so fond and so critical of); photography; video filming and editing; TV, cinema and stage acting and directing; design; couture; children's education, etc.;
- Documentation and data gathering: this line of development needs to be fully developed since it is of prime importance and cuts across all sectors of education and training.

16. Research and Development: Some Examples of Problems and Issues of Interest to the French Researchers

- Use of new technologies and new media for education and training.

- Interaction between researchers, educators, trainers, decision- and policy-makers, with a focus on concertation and reflection.

- Training of teachers and trainers.

- Study of the concept of "distance" in education.

- Communication in education (especially "horizontal" communication in schools, universities, etc.

- Self-evaluation in distance education.

- Artificial intelligence.

- Research and study of how to improve conviviality of the machines

- Study and practice of new languages (such as **PROLOG**) and new tools (such as expert systems) to reinforce and improve the learning process. Some projects from INRP: Reasoning in experimental sciences; reasoning in mathematics; problem resolution in chemistry; pictures data banks; production and analysis of natural language.

In each case the aim is not to produce "expert systems" specialized in one field of knowledge, but rather to reinforce the capacity of software environments to teach, guide, help and evaluate in a differentiated manner. The conception of such environments is supported by functions which are common to "intelligent tutoring" systems. Elaborated and complex representation modes are used, such as schema, plans, various methods of propagation of constraints, etc. Communication with the programme user is stressed. In order to analyze responses or information request and questions from the user, production of interfaces of dialogue with the users are indispensable.

- Audio-visual:

  INRP, for instance, is engaged in research along these lines:

  - Study of the effect of some specific TV programmes (such as home dramas, historical fiction, scientific commentaries or entertainment) on the social, cultural and cognitive representations of youth between the ages of 11 and 17. This research was initiated because of the general concern on the so-called "nocivity" of the impact of mass culture on young and passive viewers.

  - Research on reforms and modes of learning through TV by young viewers (ages 7 - 9);

  - Research on the process of audio-visual production by children. How children are using visual and audio signals, how do they propagate them in order to produce knowledge and know-how?

- Stress on the need and merits of multidisciplinarity, which is necessary, for example, to study and use the new technologies and the new media. Use of multidisciplinarity in informatique, cognitive psychology, linguistic, logics, neuro-sciences, etc. As for INRP, it is associating itself with other academic pluridisciplinary research teams such as **VIVET** in Le Mans, **CABROL** in Nice 3, **CUPPENS** in Toulouse, etc.;

- The "technological images":

Since the information and knowledge received by pupils and students outside the classrooms are now competing with the information and knowledge given by teachers and books - and because of the increasing role of new technologies (especially interactive video disk, portable video and TV, digital images, etc.), one is made to witness the fundamental change in access, retrieval, treatment, production, and storage of images. This whole area needs to be studied and assessed.

Teachers and students have been trained up to this day to handle communication through writing and reading, and through language; from now one has to develop, teach and learn through analog tools and techniques, i.e., through new knowledge and know-how based on images.

- Research and study of the individualization of the learning and training process, with a focus on distance learning and training. This is a major preoccupation of the INRP, CNED, CNAM and many French universities.

- Research on the use of "Transparent" Computer in education, particularly in primary education which focuses on the flow of information between students and their environment at school and outside. The computers are used for word processing and production of "images", although the users - children - have no technical knowledge about computers and about any programming language.

Funds are provided either through the public sector of the Ministry of Education, the Conseil National de la Recherche Scientifique (CNRS), etc., or the private sector.

One interesting example is INRP's Research Group **GRINDR**, which organises meetings on the theme of Networking in Education.

17. Future Evolution of Distance Education in France

What could be the evolution of distance education in France in the coming decades? The main trends seem to be the following:

- More teamwork and synchronisation among professionals of distance education;

- More regular evaluation;

- Concertation with hardware workers;

- Creation of a 'national working group' which would undertake the inventory of French distance education and then elaborate the criteria which could be recognised by all. These criteria should be very useful to gain more financial support, particularly from public institutions such as FAF (*Fonds d'Assurance Formation*).

- Set up plans for a better information of the public;

- Search for and secure more local and regional support for distance education;

- Reinforce inter-organisation and inter-institution cooperation.

- Revision of existing official laws, regulations and guidelines which must be adapted to the new educational, social, economic and personal needs, together with the use of new technologies and new media. This requires concertation between all the social partners and the State;

- A new experimental action programme will be launched soon (with the patronage of the *Délégation à la Formation Professionnelle*, attached to the Ministry for Social Affairs and Employment, in order to evaluate the impact of the new technologies on distance education.

18. France and Cooperation with the French-speaking world

At the last summit meeting of French speaking countries, the French government proposed the creation of CIFAD, a committee which is aimed at promoting distance education in each country member by pooling resources.

Ten language professors from Argentina were trained by CNED-Vanves in 1987, together with the cooperation of other agencies and the Universities of Paris III and V.

CNED also assisted the Comores government in developing and strengthening its training of primary school teachers in distance education.

19. French Cooperation with Europe

European cooperation is being reinforced in all fields of education, particularly in distance education. By combining so many different ethnic, linguistic, cultural, political, social and political materials into its melting pot in order to be better integrated, Europe is making an experiment at an alchemical level which should be of interest to all those who consider education as the "glue" or the "yeast" which can help people as well as societies and nations grow.

In this sense the European experiment could serve as a reference and a pilot experience. *Vice-versa*, the Europeans would gain in broadening their international cooperation particularly with Japan, China, India and the developing world. Distance education should not have frontiers or walls of any kind.

In order to better cope with the continuous development and change in technology, Europeans are now studying the feasibility of creating a common training center and educational programmes. This is one of the objectives of the DELTA Project. Furthermore, the ambitions Eureka Project initiated by France which aimed at coordinating and reinforcing basic research and R&D in Europe, should have multiple effects in the whole of Europe on education, especially distance education.

In the OECD, the *Centre pour l'Innovation et la Recherche en Enseignement* (CERI) is actively engaged in the research and promotion of new ways to improve education. Since 1984, CERI has, among its projects, one which is devoted to "Education and the new information technologies". Its objective is to gather data and clarify both the policies and measures taken by the OECD governments to introduce new technologies in education, and the research and experiments as well as a research being conducted concerning the potential impact of new technologies on the overall system and operation of education.

This project is now in its third phase. Implementation and integration of new technologies are now being recommended in order to change both the education process and the competence of the educators, as well as their number, specialization, teamwork and sharing of tasks among them. Research and study are organized around the following three themes:

a. Analysis and evaluation of the various strategies and the political follow-up necessary for the application of the new information technologies to the field of education, in order to improve the teaching and learning processes;

b. Evaluation of the existing pilot experiments which use, on a wide scale, the new information technologies to improve the access to education and training, as well as the teaching and learning processes themselves;

c. Research and development in the area of the new pedagogical application of the new information technologies with a focus on the basic learning processes.

USING THE MEDIA: CHANGES IN STRUCTURES, DELIVERY AND CONTROL

N. E. Sargant

Introduction

It is increasingly difficult to be clear as to what constitutes "higher education" and how and where it is provided and takes place and therefore, determine what will be distinctive about the changing role of the media in relation to it over the next decade or so.

It is interesting that the British Reform Act of 1988 defines higher education entirely in terms of descriptions of courses which are deemed to be above the level of courses normally taken at school or in further education.

It is seen to be at a "higher" academic or intellectual level than what precedes it. It is not necessarily structured in any particular pattern, over any particular number of years, nor does the content have to be studied in any particular way. However, the conventional expectation is still clear.

Students are expected to go on from GCE advanced level work or the BTEC National Certificate or Diploma to study for a first degree, normally in one go, normally in one place and normally in one subject or in an integrated group of subjects, and normally with substantial financial support from the community. Under such circumstances, the media that academics and learners use to assist in the learning processes are the conventional ones, print continuing to be the most significant. Most institutions of higher education can now add to this array of new technological resources: audio tape, video tape, computers, video disc, etc. Some will have access to closed circuit television on campus, others may use microwave systems to take their own teaching to other sites. Learning systems beamed down by satellite now exist in a number of countries, some operating internationally.

The purpose of this chapter is not, however, to engage in an exhaustive description of the current state of the art and science of the media. It is rather to try to identify the changes which lie, some of them hidden, behind the structures of the media and of higher education which may affect the use one may make of the other over the next decade or so.

Using the Media

The media are, of course, in themselves value-free. They can be used to store or deliver or transfer knowledge of any kind. The "medium" as far as education is concerned is certainly not the message.

Reminding ourselves of the principles of diversification in business shows the following matrix of options for higher education:

Existing Students Using existing ways of teaching/learning	Existing Students Using new ways of teaching/learning
New Students Using existing ways of teaching/learning	New Students Using new ways of teaching/learning

In contrast with traditional face-to-face teaching what the new techniques can do in particular is, firstly, get to *more* people than could be got to through conventional ways and, secondly, get to people who could not be got through those conventional ways.

The Open University (OU), for example, tried both to get to new students in new ways. It did not, twenty years ago, set out to rewrite the curriculum of higher education. As Birnbaum (1974) said:

> "The Open University has begun with a fairly straightforward notion of subject matter which assumes that students have much to learn from an intact cultural tradition."

It did, however, set out to de-mystify the content of higher education and make it open for everyone to see, removing it from its cloisters and placing it in the public domain of libraries, book shops and the airwaves. The institution, as Harold Wilson saw it, was to be a rational re-ordering of the facilities of existing agencies of adult education combined with the technological capacity of the media. Obviously, it would cost less than conventional institutions as it did not require vast capital sums to be spent on bricks and mortar. The key to the expansion of provision, as the White Paper made clear, was to be the active use of the full range of media for instruction.

> "The presentation of courses will variously involve a combination of television, radio, correspondence courses and study and discussion at community viewing and study centres. [paragraph 8 (7) A University of the Air]

All of these teaching media and others beside have since then been pressed into the service of the OU in the UK and many other such systems in other countries. Most are also being used for similar systems such as the Open Tech, the Open College and perhaps the Open Polytechnic.

Does access matter?

Access was not at that stage in the early seventies a matter of much concern to conventional institutions of higher education. The task of reaching mature students in large numbers was left to the OU. Indeed the DES, as late as 1978, recorded laconically in "Higher Education into the 1990s" the fact that there was little evidence of unsatisfied demand for part-time degrees! (DES, 1978) Indeed, the country chose *not* to expand its provision for the conventional age-group over the last decade and the bulge in the birth-rate which had culminated in 1964 suffered "a real diminution in opportunity". Alan Thompson, then Deputy Secretary at DES, who used this phrase commented at the same time that he expected that this diminution in opportunity would go largely unnoticed!

The point of this story is, of course, that we are now approaching the forecast time when the decline in the birthrate is starting to be noticed by admissions tutors and by potential graduate employers. The diseconomies of decline experienced by the school system are now facing higher education, and the government pressed on by employers' needs is proving more liberal in keeping up student numbers than might have been expected. To fill available places, particularly in some subject areas, is likely to bring in more mature students as well as moving down qualification levels at entry and maybe even the social class origins of the younger age group.

There has been, therefore, no particular incentive in this country to make more use of the media for conventional age students for conventional degree level work. Where the media have been of greater use has been in the area of distance and open learning and adult training.

New Structures

The OU did not, of course, merely change to an open admission system; it also adopted a modular credit structure allowing students to compile their degrees from a wide range of credits. Not surprisingly, and with great benefit on both sides, many students found themselves wishing to use their OU credits either in lieu of entrance qualifications or to gain advanced standing for other degree courses elsewhere. The transferability of credit agreement between the CNAA and the OU provided recognition of this increasingly valuable practice which was also being followed within a number of universities. Increasingly the tidy vertically integrated degree structures of the past are changing into modular and more flexible patterns and movement is possible within systems and between systems.

The impact of continuing education and training

At this stage, we start to see a bridge between higher education as it has been traditionally practiced, the OU's provision of higher education for adults and the development of continuing education. Whereas much traditional adult education has not been at any particular level, or tied to particular qualifications, many post-experience courses or continuing education courses are at levels which are indistinguishable from those of degree work. Distance and open learning techniques prove particularly suitable for busy mature and motivated adults. The MSC's funding of Open Tech recognized this, though the programme eschewed the use of national broadcast media. Indeed the MSC has made it a deliberate policy to promote open learning as a valuable and economic means of training adults. Though the Open Tech rejected the possibility of using national broadcasting, the Open College is currently using it and the proposal for an Open Polytechnic has raised the possibility of delivery of programmes by satellite. At such a point, narrow-casting would probably be a more appropriate term than broad-casting.

Old and new media

So the move away from tightly integrated degree structures made available face-to-face at individual institutions and dependent on the expertise of local academics opens up the possibility of an increased use of a wider variety of media. Dependent on the nature and size of the audience and the content to be studied, the media can be cheap or expensive. Print still remains an invaluable aid as Peter Montagnon reminded us graphically at an international symposium on global learning:

> "The book is still the most flexible, the most potentially innovative and useful medium available after the human voice; you can write comments in it, flip backwards and forwards through it, find your way by turning down the corner of pages, or underlining it, which is more than you can do with a video disc. You do not have to plug books into an electric supply, just into your brain and your finger." (Montagnon, 1986)

What was unique about the OU was that it brought knowledge into the public domain and made it available, often freely, but always relatively cheaply. It was able to use another major public service free at the point of use, the BBC, to deliver its broadcast materials on TV and radio. The arrival of new technologies and, in particular, the arrival of direct-to-home satellites is soon to change this situation. The duopoly of broadcasting, provided to the whole community in the Reithian public service tradition, is entering its final years. While new technologies will bring more choice and, it is hoped, more variety to people, they will also have additional costs attached which will increasingly have to be paid by individual users rather than the community.

The breakdown of monopolies

The question of who pays and at what point in the process is indeed the critical one and discussed it at length elsewhere both in relation to education and training and to the future of television. (Sargant, 1987) At an earlier stage in technological development, many services could only be provided by the community acting together to fund provision of communal services designed for individual benefit and use. This is still true for the provision of many services such as trains, electricity and water. They have developed into monopolies, or near monopolies of supply more because of their scale and nature rather than for any philosophical reason. (Whether they are public or private monopolies is, of course, a different question.) Other services which used to be provided communally can now be provided for personally - watches, washing machines, refrigerators, for example.

More people do not need now to use the public clock, the municipal laundry, or even increasingly, public transport. The same is also effectively true for the provision of education, and particularly for higher education, as far as most people are concerned. Just as the arrival of new technologies will inevitably break down the monopoly of public service broadcasting, so that same arrival, it can be argued, will break down the monopoly of institutions of higher education, and indeed, much of post-school education.

When people had no other choice of television channels they had to watch what the BBC chose to transmit - usually very good, of course, and selected within the best paternalistic tradition. Similarly, learners have until now had little choice about what they are offered to study and how. Professors and educators have laid down the curriculum in detail, sometimes even specifying study procedures and requirements which have little to do with the communication of knowledge.

Adults, however, now no longer have to go and study in a particular location, over a particular period of time and in a particular manner. They can use a variety of media in their own time and in their own place to continue their learning. The major barrier that has prevented this until now, that of accreditation, is being increasingly eroded. With transferability of credit, the addition of open and distance learning routes to many qualifications, the Open Polytechnic following on the heels of the OU, together with such moves as the CNAA's credit accumulation and transfer scheme, the accreditation of open and distance learning routes to many qualifications, the Open Polytechnic following on the heels of the OU, together with such moves as CNAA's credit accumulation and transfer scheme, the accreditation of experiential learning, competency based assessment, etc., there is every reason to suppose that many adults of all ages will prefer to study through such routes even if they have the choice of full time study. Many may well not have the choice as the costs of full-time study will be beyond their means.

Who pays and at what point in the process?

We come back to who pays and at what point in the process. Traditional face-to-face teaching is, of course, labour-intensive and its cost increases effectively in an arithmetic relationship to the number taught. Of course, some media are more expensive than others. The difference is that using the media is capital intensive at the front end of the system. Once this investment has been made, the marginal cost of extra students is low in relation to the original capital expenditure. There is every incentive to expand the number of students so served within the institution and in other institutions. And, of course, it is not necessary to stop inside national education systems. OU materials ar widely used in other countries, even non-English speaking ones, and the new Commonwealth of Learning initiative aims to capitalize on this same possibility.

As the communication village becomes smaller, satellite learning systems will make material available without respect to national barriers. The American National Technological University, for example, will beam courses to Americans in Europe.

The holding of intellectual property

There is, however, a downside to these developments. We have, until now, assumed that knowledge in all its forms is available and in the public domain for teaching and research. Indeed it has been axiomatic that scholars will publish their new materials for colleagues and future generations. The most common form of publishing apart from lectures has been the written word, the most common repository being the public or academic library. These have been funded up front usually by the community and the user has not been asked to pay at the point of use. Of course, the question of copyright, of the ownership of intellectual property has arisen, but not in a major way as the laws of copyright and conventions of royalty payments have been until recently adequate to deal with print publishing.

The media are used to store, transfer and deliver knowledge. When the medium is a book, it is easy to store in an accessible place. Once published it has little continuing cost. Copies are distributable cheaply. New media which are increasingly being used to store knowledge instead of books, e.g. microfilm and databases are not as accessible, require expensive equipment to store and access and have a continuing cost attached to their use. It is ironic that just as librarians are endeavoring to open up more accessibly to a wider clientele, so the equipment of their trade has become more expensive, requires more guarding and is therefore likely to be less accessible. Some writers are taking an even more pessimistic view of the information revolution, the transition of information storage from the printed page to the electronic data bank. It has been suggested (Ashton, 1988) that it poses the specter of a new Dark Age: restriction of access to information by those who control the databanks. A main reason for this is that it is the private sector that is building the most up-to-date databases in such important and diverse fields as law, medicine and the natural sciences. While some can afford to access these databases, and while the cost of packet switching means that it does not matter whether they are in Californian or Switzerland, others cannot. Developing countries will be placed in an even worse position, with the gap between the information-rich and information-poor growing. Indeed some information may be kept in private or governmental hands and not made available to scholars freely as in the past. In a related field, the pressure on the Third World by developed countries of, for example, the patenting of international life forms, and the private control of this intellectual property means a serious threat to international scientific research which is particularly damaging to Third World countries. (Facts in Focus, BBC Radio 4, 2 February 1989) It is, of course, public libraries and academic libraries which have to bridge that gap; but increasingly they will not actually hold the information themselves. As commercial brokers of information do, they will move towards providing access to it rather than keeping it themselves: a scan of the keywords of specialist journals and copy of the chosen articles can be achieved very quickly, efficiently and relatively cheaply. However, it is the user who will be expected to pay. Ashton (1988) quotes Derek Law of Kings College, London as endorsing the "user pays" principle,

> "The issue is rather whether universities and other public institutions should charge a commercial rate or cost price to its users."

The catch here is that payment will need to be made for each use, and the same information may be charged for again and again. Information has become a commercial service, and this moves its access further and further away from the assumptions on which the work of higher education is based.

It is not surprising that major print publishing companies such as the Maxwell Communication Corporation are extending their range of interests from textbooks and specialist journals to scientific and business software programmes to microfilm and on-line databases; in fact to any format for providing information which is effective and meets business needs.

The marketing of knowledge

Completing the circle of this argument returns us to the fact that much of the knowledge base of higher education is now being developed into individual learning packages for open and distance learning which are then available either for public distribution or commercial sale. The OU and Open College both expect to market their courses. It is not surprising that a communication corporation such as Maxwell is interested in working with the UK polytechnic system to create an Open Polytechnic. Undoubtedly, this is an exciting project. The learning materials would be created by academic staff in individual polytechnic and, building on that base of knowledge and scholarship, would then be available for all the other polytechnic whose students may study or transfer as they wish across the array of expertise of all the institutions. At the same time, however, the implication is that these packages of knowledge will move from the public to the commercial domain where they will be sold to private users and commercial markets. The issue of the ownership and control of that knowledge and the copyright in it, given that the polytechnic are publicly funded institutions and are drawing on generations of public funded academic heritage, is a fascinating one.

Even if knowledge remains in the public domain, there is, as noted earlier, an increased and recurrent cost attached to its continuing provision and use. Enquirers seeking information from the British Library on-line service (BLAISE) still need to pay the cost of the telephone call as well as the royalty fee, although they can economize by phoning in the evening!

The need to keep academic information in the public domain

Added to this trend caused by the move to new technology is the general impact of the current philosophy of private ownership and the move towards privatization.

The dominant view at the moment is that education and training are private goods to be privately paid for. The leaked Chevening papers make it clear that Robert Jackson, Minister of State, Department of Educational Science, wishes this principle of personal payment to have greater currency in the future.

> "We have to make a basic conceptual shift from the idea of the government providing higher education through institutions... to an alternative paradigm of the government enabling individuals to purchase services from providers who are independent of government, but who are obliged to be more responsive to the customers thus enabled." (Education, 1988)

At the same time, institutions of higher education are to be put under greater pressure to raise private funding.

Private funders not unreasonably have more interest in funding research relevant to themselves. This is certainly true of government departments, who usually expect to have the final say over the publication of "their" research results. Will an increase in private funding, therefore, lead to a decrease in the quantity of knowledge reaching the public domain? Does the intellectual property right belong to the academic who prosecuted the work or to the funder who funded it or the university or polytechnic where the work was carried out?

If whole sectors of education and training are to be removed from the public domain into private operation, how will intellectual interchanges and academic development take place? An immediate example of this is presented by the removal of much training and higher education to the new employer-led Training and Enterprise Council.

Not only are these local rather than national, but they are led by the short-term needs of current employers. Any improvements in the knowledge of the state of the art of training will now be in private hands, with materials being privately developed for particular purposes. Of course, employers may be philanthropic and share their best and most efficient training techniques with other employers. It is not easy, however, to see why the training departments of competitive companies should assist each other. Neither is it easy to see how the interchange of experience which would lead to improvement in the theory and practice will take place in the future.

The increasing understanding of the value of intellectual property and its ownership is in tension in the field of higher education with the author's academic rights in their own work. The media increasingly have the power to make knowledge more accessible on a worldwide basis and the capacity to reach to individual people breaking barriers of time and space, to the benefit of all in higher education. At the same time, the information revolution places the control of that knowledge and its availability within frameworks which will erect new barriers to its access and increasingly remove it from the public domain of scholarship and research. Higher education needs to ensure that governments nationally and internationally act to safeguard the freedom of access to information taken for granted in the past if it is not itself to become "information-poor".

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ISSUES RAISED AND DISCUSSED AT THE PANEL MEETING IN PARIS

Ed W. Ploman

Introduction

Some contemporary analysts are talking about a crisis in education, which is striking at the level of higher education as proven by the pervasive reforms of the higher education systems all over the world in an effort to adapt them better to the rapidly changing socio-cultural and economic context. Researchers, policy- and decision-makers have been analyzing the role and functioning of higher educational institutions in the search for new models and greater relevance - for today and the future.

In the autumn of 1989, it was agreed that the United Nations University would undertake for UNESCO a study on the evolution of institutions of higher education, with particular emphasis on developing countries. UNESCO is specifically interested in this area since the organisation intends to launch a series of activities focused on the problems facing higher education given the changing needs of societies. The study undertaken by UNU will be used as an input into, and a resource for, the global reflection on higher education which UNESCO intends to organize in the next few years, at the regional and international levels.

Implementation

Given the object of the study, as well as the constraints of time and resources available, it was agreed with UNESCO that the study would not aim at an attempt to provide an exhaustive or comprehensive report. The report would focus on major conceptual issues, such as the evolution of the concept of higher education, different models of higher education, the prospects and challenges facing institutions in this field. It should be analytical rather than descriptive, should identify issues rather than discuss details, should be future-oriented by paying attention to emerging issues and open-ended enough to support contradiction, even conflict.

With these parameters, the UNU would seek the collaboration of selected interested individuals. Concerned organisations would, in due course, be contacted by UNESCO in connection with the planned global reflection on higher education to be initiated by the organisation.

The study has been conducted through the commissioning of a limited number of papers and the selection of other documentation directly relevant to the focus of the study. These activities have been complemented and synthesized through the organisation of a small working panel to suggest conclusions and draft a synthesis which could serve as a resource for the global reflection on higher education planned by UNESCO.

Members of the panel agreed on an approach intended to go beyond the conceptual confines of the traditional university model. All members of the panel were not necessarily in agreement on every point nor on the papers made available *in toto* or in draft. The panel was more concerned with the attempt to reflect on recent trends and start rethinking of the paradigms of higher education.

The panel also devoted much attention to the general context of specific issues facing higher education. Another issue of great importance to the panel was the search for a balance between the level of generalization and the diversity of higher education in terms of specific cultural and geographical settings and needs. In this perspective, the panel members agreed that the report should, as far as possible, be appealing not only to experts in higher education, but also to other categories of potential readers, such as political and other decision makers, concerned institutions from industry to nongovernmental organisations and interested members of the general public.

Consequently, the report comprises:

- a synthesis and conceptual framework as proposed by the panel meeting in May 1990;
- specially written contributions;
- documentation from other sources.

Contexts

To be meaningful, an analysis of the functions and problems of institutions of higher education need to be set in context. For this study, the need was for perspectives that could be relevant and revealing, facilitate discussion beyond a conventional or traditional approach, while remaining open-ended so as to invite additions and other changes due to different circumstances and requirements.

The views expressed in the panel meeting of May 1990, and in the commissioned papers complemented by information culled from other sources pointed to three sets of perspectives that can be seen almost as three concentric circles, or more in keeping with the dynamic nature of higher education, as an evolving spiral of contexts, encompassing increasingly wider fields. Thus, these widening perspectives for the analysis of the major functions of higher education and consideration of context moves form, firstly, certain aspects of institutionalized higher education to, secondly, analysis of the definition and legitimizing of knowledge and, thirdly, global issues as the ultimate context for higher education.

I. Context - First Perspective: Institutional Issues

(a) Since the panel had agreed to adopt a wide perspective which could go beyond traditional models in higher education, the first issue concerned the specification of activities and corresponding institutions to be included. In the literature, a number of expressions are used almost interchangeably: higher education, post-secondary education, tertiary education which in turn include academic research. A certain obscurity is also apparent in the discussions of the institutions in this field. Often, a distinction is made between the university sector and the non-university sector which has the disadvantage of the latter category being defined in terms of what it is not. The habit of putting universities at the centre of higher education can only be made to encompass the current breadth of institutional arrangements on the understanding that, today, universities represent but one category of higher education, even though historically a vitally important one. Universities are complemented in various ways: first, by a series of institutions with a primary educational and more precisely formulated mandate ranging from polytechnics to conservatories, and second, by other kinds of institutions with a primary mandate in other areas than education, such as industrial enterprises ("corporate universities") and a variety of non-governmental organisations that now also provide higher education for specific purposes. All of these activities and institutions should be taken into account for a reflection on higher education. Within a strategy of recurrent education in the high-tech industrially advanced societies various histories and arrangements are made to cater to the needs of mature adults.

(b) In addition to the need to recognize the breadth of institutional patterns, there is also a need to go beyond the conventional limitation of conceiving only one model in respect of the timing of higher education. Traditionally, higher education activities are often equated with, and structured around, specific age groups. However, since requirements and needs vary with cultural and other circumstances, the time dimension of higher education should - and is - increasingly managed as a variable parameter. In many developing countries, there is a need to provide higher education in a more flexible manner, thus, at a later age than has traditionally been the case in industrialized countries. In these countries, various circumstances, including the availability of resources, have made it possible to organize the provision of higher education at a relatively early age to which lately has been added the possibility of continuing education at various periods during the life-span of an individual.

Attention has been drawn to a fundamental, unsolved tension between two opposing attitudes: higher education with a focus on matching graduates to the demands and opportunities of the labour market versus higher education based on a human resource development approach. In the first case, there is a perceived risk of what has been called an "overproduction" of graduates who are not able to find employment in keeping with their assumed level of competence. This mismatch and the corresponding frustrations are thought to be particularly damaging in certain developing countries with expanding aspirations in higher education and with limited resources in finance or manpower. The second approach starts with an emphasis on higher education as a means for human resource development. Thus, in this case, the employment angle is secondary. A proper balance for policy would be to organise higher education so as to keep open as much as possible continuing opportunities at various levels of age and competence. Attempts to apply precise "manpower planning" in higher education in a rapidly changing society has considerably turned out to be failures.

(c) Issues concerning breadth of institutional patterns and a nonlinear approach to the timing of higher education are closely linked to yet another perspective for analyzing higher education. In this perspective, emphasis would be shifted from the traditional, sometimes exclusive focus on the supply side of higher education, i.e., on the production and delivery of higher education services to an emphasis on the learners and their requirements. Consequently, policy would be for keeping open continuing opportunities for higher education in relation to the diversity of needs and aspirations.

Again, this perspective seems particularly important in the context of many developing countries where the need is for more opportunities for access to higher education to be safeguarded for longer periods. And again, the requirement is to regard age as a variable parameter with a focus on a life span approach to education generally, and thus on educational planning being concerned with the total educational enterprise.

(d) All these factors point to the need for diversity in higher education, a diversity that appears at different levels:

- in the difference within institutions of higher education between one faculty and another; between one discipline and another;
- in the difference between educational institutions: some are primarily concerned with research, others with teaching and training in the traditional sense, still others with service to the community and the public;
- geographical and regional differentiation, i.e., of cultural situations, stages of socio-economic development, or political awareness.

These are no more than examples of the diversity which we can identify a common case of principles that seem generally valid.

(e) There would be, first, a need to recognize the diversity of opinions about the very idea of formal education. Radical challenges are in an extreme form represented by Ivan Illich's plea for "Deschooling society". In his view, the school is defined as "age specific, teacher-related process requiring full-time attendance at an obligatory curriculum". Without going this far, there had been a more generally acceptable, increasing trend away from the sometimes almost exclusive attention to the production and delivery of education to a focus on learning and the needs of the learners. A well-known example is the UNESCO-sponsored Commission on the future of education and its report which was given the illustrative title of "Learning To Be". One emphasis in this report was the promotion of flexible and continuing educational programmes. The learning perspective had been taken up in various guises. In the late 1960s, there was already a study entitled the "Learning Society". The learning perspective in fact seems so important that several chapters in this report (E. L. Plowman, p. 000 ff) are specifically devoted to this subject.

(f) Even such a common problem as striving for excellence requires a diversified approach. The concept of excellence takes on varying meanings in different circumstances. There is, first, the need to find a careful balance between excellence and equality and resources since the two requirements are not compatible. This would, in turn, imply a more diversified attitude to the concept of excellence itself which it is proposed should be seen as a way, rather than as a standard, particularly not one imposed from outside[2]. Instead of comparing domestic performance with that of institutions in other countries not least those in "metropolitan areas", it is more fruitful and responsive to indigenous needs to stick to the principle which has been summed up as: "Whatever you do, do the best you can within your own framework".

(g) This in turn is related to the potential dangers of systems of higher education in many countries, including developing countries, adopting as the dominant, and sometimes, the only "valid" model for higher education - the Western university - for instance, the Humboldtian Research University. Thus, the assessment "excellent" is made on the basis of comparison with an outside model that may have little, if any, relevance in other settings. In this connection, analysis has also reacted against a further possible consequence of relying on one outside model only. This sometimes leads to self-centeredness and cultural blindness, if not arrogance, shown by some systems of higher education.

A similar analysis could be made with respect to other crucial common concepts such as productivity, usefulness, relation to work[3]. None of these concepts can be taken as given - they are all problematic. In these and other cases, there seems to be an underlying opposition between the striving for universalistic norms and particularistic commitments which may depend on a range of factors from cultural differences to varying relations between higher education and other social actors such as government, industry or the military.

(h) According to a recent OECD survey, there is a pervasive feeling that "the current problems and those likely to affect higher education in the years to come are not merely related to questions of resources, numbers, low efficiency or mismatches between supply and demand of graduates. They do pose some fundamental problems of the very purpose and function of higher education in post-industrial societies". (OECD, 1987:3) While this quote is from a study specifically devoted to the situation in the highly industrialized countries, it is applicable in a more general perspective to sets of problems that seem to be shared by systems of higher education almost all over the world. In capsule form, it seems that societies possibly everywhere are facing a crisis _in_ education as much as _of_ education, for reasons both external and internal to the higher education systems.

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[2] It is interesting to note that this issue seems relevant in very different settings, despite the tendency to find applications mainly in developing countries. In a recent interview the special advisor to the French Ministry of Education, discussing plans for yet another reform of higher education, stated clearly: "The French problem is the tendency to conceive universities according to one unique model, with all of them heavily involved in fundamental research in all fields. Will our seventy-five universities all be like Harvard or Oxford? Obviously not." Thus, the insistence on both expansion and diversification of the French system of higher education. (Claude Allègre, interview in *Le Monde*, 7 June 1990)

[3] It should be noted that under the concept of "work" we have aggregated many social functions: livelihood, prestige and dignity, organisation of time.

(i) One fruitful approach to these "crises" would be to look at the relationship between higher education, including science and society. This complex relationship needs to be analyzed from many angles and by using diverse crucial concepts. As noted earlier, such concepts cannot be taken as given or clearcut - they are all problematic. And even through the commonality of issues, the need is for diversification according to varying needs, settings and circumstances.

Thus, to give a few examples:

- financing in the sense that every society has to work out how much to spend on different levels and sectors of education and decide, within this framework, how much to spend on higher education;
- productivity in the widest sense, keeping in mind that various phenomena in society are not quantifiable and often not comparable;
- "usefulness" - to whom and in which circumstances? Is it "useful" to have institutions that have a license to question everything to take but one extreme issue?
- the tension between the way science or knowledge is used in society and the way it is generated.

One of the most visible factors is the explosive growth of both higher education and science which contributes to putting both institutions of higher education and the scientific enterprise in a period of transition. According to one recent analysis, science has not only shown, during the last hundred years, exponential growth but also has moved from the periphery to the centre of the social, economic and political life of societies. Science has become the backbone of the so-called information society. The concomitant rapid growth of higher education has drawn attention to the important relationships between the inside of an institution (science or higher education in this case) and its outside (the institutions' interest groups, etc. that make up the rest of society). "The point is that the volume of science has grown so its surface - that is the relationship with the rest of society - also had to alter...Both science and universities have begun to experience a condition of functional overload; of trying to do too many things without altering the form of these institutions." (Gibbons, 1985:xi)

The changing conditions of higher education seem profoundly related to, and conditioned by, developments in science and its institutional setting and development. The present situation has been analyzed in terms of two distinct sets of pressures. They are external and internal to the institutions of science and higher education. External forces are those in the form of demands for a wide range of services to government, industry and the military. "The second set derives from the internal constitution of science, from its cultural or value system, and from the institutions that scientists have built or have cooperated building in order to maximize the conditions under which their work is performed". (Rothblatt, 1985:21) The operation of these two pressures, the external pressure attempting to mould science to social needs and the internal pressure aimed at acquiring social acceptance for pure scientific work, has resulted in the professionalisation of science which has given the scientific enterprise its current shape.

The professionalization should be viewed in relation with changes in the nature of knowledge, from unified, "certain" knowledge, to hypothetical and fragmented knowledge and has, in this respect, been seen as a manifestation of the principle of exchange, characteristic of industrial society. This, in turn, is related to the growth of specialization. One consequence of this is the increasing "commoditization" in the form of project-oriented research of science and knowledge and its influence on scientific institutions such as those of higher education. This has bearing on a series of tensions between science and commodities, scholars and academics, scientific communities and research systems, between institutions that are open and those that are functional, as well as between the scientific enterprise as an open community of scholars and the knowledge production system as an academic research system. In general terms, these developments have led to a gradual encroachment on the hallowed principle of free exchange of knowledge.

II. Context - Second Perspective: The Knowledge Dimension

(a) The last points dealt with above approach a second perspective: current trends in the reflection on - and the management of knowledge. These shifts in attitude and practice refer to a wide gamut of issues, from epistomological problems to uncertainty about the demarcation between the public and the private domains in the handling of knowledge.

It is, indeed, a vast and complex field, subject to profound changes in theory and praxis. In the first instance, there is a need to consider at different, interrelated stages which can be summarized as starting with the generation and creation of knowledge to the transformation of knowledge when it is moved from one knowledge system to another, or even from one medium to another and, finally, to processes of transmission and dissemination of knowledge, including the interconnected issues of availability and access. Each stage would, in principle, deserve a comprehensive analysis which, however, would take us too far in this context. The focus will have to be, therefore, on certain specific aspects.

One entry gate into this difficult area may be found in the search for answers to some apparently simple, yet basic questions such as: who decides what is to be defined as "useful knowledge"? and, who contributes to the generation of such knowledge? Today, the social process of legitimizing knowledge has reached a stage when, in fact, it has become accepted that a diversity of centers are involved in the creation of knowledge. The panel recognized and commended this diversity even though there were differences of opinion on how to assign responsibility to different institutions for the generation and subsequent transmission of knowledge, according to different circumstances and needs. It was noted though, that various activities such as research in certain fields were beyond the means of individual institutions, and even countries. This was one reason for strong agreement on the need for collaboration, particularly at the regional level, between institutions of higher education and their governing bodies for the generation and, often, also for the transmission of knowledge.

This in turn relates to the much discussed issue of the internationalization of higher education which from the establishment of the first universities in Europe has been a pervasive character. Without going into details, the panel noted the desirability of flexible patterns of cooperation that would include a genuine two-way sharing of knowledge among institutions in different countries. Examples were given of such cooperation involving medical institutions, as well as other subject areas, in Germany and Hungary, India and Malaysia; recent links have been developed between institutions in Sri Lanka and India. A warning was sounded though that even such activities may present "traps" for the unwary.

(b) These "traps" often seem related to the more general problem concerning the implications of transforming one knowledge structure into another over which exclusive control can be exercised. This moving of knowledge occurs not only along the axis of "public versus private" which has become a pronounced feature in recent debate, but also in terms of an altogether more ancient tradition, along the axis of "professional versus lay". In this respect, analysts have pointed to certain activities of the famous library of Alexandria designed to establish one "authorized version" of classical texts which existed in several versions. Modern examples include the movement of knowledge and information into computerized data banks or into expert systems. The "professionals" should be, in this context, understood as a broad category of experts who can "privatize" information by capturing and monopolizing an area of knowledge through claims on exclusive competence in production, interpretation, and often even distribution.

A related issue seen from the opposite angle concerns the need to draw attention to, and validate the varied and rich "non-formal" methods for the generation and transmission of knowledge. These are obvious in areas such as agriculture, medicine, music and crafts, but they have often not been recognized by the formal institutions of higher education. Nor have these institutions show trends towards a certain uniformity in sticking to one model of knowledge generation and not recognizing the diversity of experiential knowledge as a vital resource in society.

The approach adopted by the panel emphasized diversity and flexibility in the timing of higher education, as well as in content. The latter, as mentioned earlier, should be conditioned to a high degree by the needs of the learners instead of the traditional focus on the supply side expressed in a uniform set curriculum. This approach thus implies great attention to the dissemination of knowledge in new modes made possible by recent technologies and systems. Dissemination should ideally be conceived as genuine sharing of knowledge and information between diverse institutions and different cultures. Information on recent developments in such a central new area of activity as distance learning was provided and has been included in the papers that make up part of this report. It was, however, pointed out that there is a need for great care in the use of distance and other learning materials based on new information systems: the context of "origin" and the context of "reception" are often very different. This, of course, applies to models of formal education in general.

A further set of questions concerns the identification of new knowledge, new actors, new trends and users. Neat and facile formulations could easily become traps. A potentially fruitful approach would be to "problematize" knowledge. Higher education as a knowledge enterprise is embedded in, and is conditioned by changes that often appear as statements of fact rather than as statements of problems.

(c) At this point it seems necessary to point out both the potentially positive and negative implications of the new information environment particularly since the latter aspect is often neglected in the headlong rush into the wonders of the "information age". These wonders often appear as an example of self-fulfilling prophesies based on social and technological determinism. It is, therefore, essential that more analysis and debate be devoted to disquieting questions that have been raised about this "brave new world".

Despite the traps for the unwary, current debate, policy and practice in the information field[4] are conditioned, to a high degree, by neatly but awkwardly conceived images such as the definition of modern society as a "knowledge society" or an "information society". Taken at face value such labels seem to denote a rather narrow chronocentric view. It is significant, though, that despite the diversity of approaches and the variety of interpretations, there now seems to be agreement on at least one point: communication and information flows are a prerequisite for dynamic patterns of organisation whether among cells, animals or humans. Without communication no community. But then it must also be admitted that in this perspective all societies have been and will remain "information societies". Throughout history, societies have evolved practices and rules for the generation of knowledge and the flow of information. All societies have accumulated stocks of knowledge and transmitted these stocks through space and time. All have also been aware, to varying degrees, of the power of communication and information, whether expressed in awe of the sacred word or in the safeguards surrounding certain uses, such as priestly texts or, more recently, military or industrial secrets.

(d) The novel features of what is called the communication or information "revolution" bear upon the availability to certain groups and communities of new, multiple forms for the production, processing, presentation and distribution of information - and knowledge. Thus, this "revolution" affects patterns of information flows and learning and, perhaps even more importantly, the very nature of what is defined as knowledge. New technologies influence the conduct of scientific and other inquiry. The computer has had a profound impact on the collection, analysis, storage of, as well as, access to data. Scientific and other information is presented in new audio-visual and graphic modes: we introduce new time scales through slow motion and ultra-rapid moving images; similarly, we change spatial scales by picturing the infinitely small and the outer reaches of cosmic space. Through these new communication and information systems we are changing our knowledge of the world, as well as our ways of knowing and learning. The transformation of knowledge can be analyzed in light of how new techniques reshape, for better or for worse, the culturally-defined methods for the coding and decoding of messages.

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[4] It is remarkable that despite the current almost obsessive interest in the field of communication(s) and information, there are no generally-agreed definitions of either terms. Dictionary definitions appear circular. It might be more fruitful to recall T.S. Eliot's questions in the Rock: "Where is the wisdom we have lost in knowledge? Where is the knowledge we have lost in information?" To which Harlan Cleveland has added another perceptive question: "Where is the information we have lost in data?" (Cleveland, 1985:23) However, even these distinctions often prove inadequate since they are, to such an extent, dependent on context. Thus, a shipping document may represent, for a layman, no more than usable "data" while the same "data" to a shipping clerk might represent precise and valuable "information".

The emerging "information society" is conditioned by a series of imbalances in technology, applications, as much as in conceptual approaches. All have a direct bearing on the management of knowledge.

i. Striking is the dominant role of the supply side in the rapid adoption of new information systems, and within the supply side, the concern is mainly with technologies and systems for production and transmission; content, i.e. information seems often curiously absent.

ii. One consequence is the unequal deployment of new technology and services both within and between countries; there is a risk of a new social division through which the *haves* and *have-nots* of industrial society are being replaced by the information *knows* and *know-nots*; the proverbial electronic global village does exist but in the form of a village of global elites.

iii. The current asymmetry of interdependence results in varying patterns of dependence and dominance. The context becomes crucial in the sense that configurations of dependence vary not only from country to country or within and between regions, but also with different kinds of information flows. In this perspective, asymmetrical interdependence also leads to new perceptions and vulnerability. The characteristics of the specific vulnerability in the "information society" has been shown to be conditioned not only by external factors, but also by internal factors arising from the manner in which countries have employed new technologies and services. This new sense of vulnerability can be seen as one reason for the search for "information security" which represents one way of looking at the confused debate on the "new international information order".

iv. There is a related series of imbalances arising from the seesawing movement of attitudes and practices focused on what properly should belong to the public and what to the private domain. There are still unresolved contradictions in this area. Much scientific information that was previously freely exchanged is now being increasingly moved into the private sphere through property rights of various kinds. The basic question is: when and how should which information and knowledge (in say meteorology or ecology) be conceived as a right, a duty, a privilege, an obligation, a public resource, or a commodity?

v. Related is a set of paradoxes in practice and in concepts: on the one hand, each discipline, almost each profession has developed conceptual approaches of its own, as has each government department; on the other hand, there are the grand overarching schemes designed to explain everything in nature and society in terms of information and communication paradigms. The former attitude points to a lack of coordination and coherence, ill-defined social responsibility and the emergence of competing or contradictory regimes on key points such as approach to these same information flows as appears in the current trade negotiations or trade-in services. The latter attitude carries the danger of one model, one knowledge structure becoming dominant;

deployment of computerized information systems has in the words of one computer expert resulted in the "imperialism of instrumental rationality". (J. Weizenbaum: 1976)

Current trends thus affect a series of interrelated issues in the knowledge field, ranging from control over knowledge generation and transmission to issues of credibility and legitimacy of certain knowledge structures. These issues are, in turn, related to the availability of, and access to, knowledge as a major problem area in current circumstances.

III. Context - Third Perspective: Global Issues

a) In a further widening of the perspective, it is obvious that higher education is also under the impact of global issues which the institutions can only neglect at the risk of becoming increasingly perceived as irrelevant. Many attempts have been made to define globally relevant issues that represent a clear challenge to all societies wherever located - and thus also to their systems of higher education as the chosen instruments for generating and transmitting knowledge and, hopefully, understanding. In the bewildering array of images, concepts and slogans that are supposed to capture our reality or, at least, its essential features, each verbal label generally provides a focus on one dimension, one theme, one aspect or one region of the world. It might be helpful, in this context, to use as a starting point the succinct expression in the UNU charter with its reference to the "pressing global problems of human survival, development and welfare".

Such a generalized entry gate provides access to specific issue areas, such as the obvious need to learn how to cope with new technologies, new demographic patterns and pressures, new modes of production, new stages of political consciousness and social patterns, such as those subsumed under the "drug culture". Or one could focus on the need to achieve development and economic growth that are both ecologically and socially sustainable, or the need to change central technical systems[5] into patterns that are ecologically non-destructive and responsive to real needs in different parts of the world. In a general way, global issues are a part of what has been labelled "globalization" as a shorthand for the increasing interdependence between regions, populations and institutions.

The international community has made efforts to collect the required information and analyze current major world ecological issues through the series of international conferences that have been organized since the 1972 Stockholm Conference on the Environment and through independent commissions among which recent examples are the Palme Commission on Common Security and the Brundtland Commission on Development and Environment. The results of these efforts represent a crucial input into the world reflection on current issues and for higher education.

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[5] The "four pillars" of the current technical system have been seen as "energy materials", "life sciences" and "information" and "communication technologies".

In summary, the kind of questions that require answers through new thinking and learning could be put from another angle: which are the problems that the emerging world community - and each of its constituent parts - must learn to cope with if we are going to make it into the 21st century without cataclysmic violence, without an intolerable erosion of the natural and social environment, in a rational and humane manner? What capacity have we developed to deal with the situation at the end of the century with another 2 billion people crowded into a shrinking "global village", already beset by violence, hunger, poverty, environmental deterioration, ungovernable "megacities" and renewed impatient aspirations by an increasing lower class.

(b) The search for answers to questions such as these cannot succeed if undertaken on the basis of single-issue, single-discipline or even single-culture approaches. There is a need to go beyond. Reality is too rich, too dense, too complex to be caught in the net of only one system of exploration, one conceptual frame, one dominant image. Many approaches, even contradictory ones are needed. We need multiple points of view. In this perspective, we are faced not only with the problem of analyzing specific problems, however important they may be, but for higher education to respond to global issues with a focus on a higher level of thought and discourse, a level of "meta-themes".

To start with, there is a need to find an appropriate spatial and temporal perspective. Not only in learning but in all relevant areas of thought and action there is a requirement for both participatory and anticipatory patterns.[6]

Participatory patterns concern the creation of solidarity over space, across national and regional borders. For the first time in history, major events affect all parts of the globe, often almost simultaneously Also, phenomena that earlier were ascribed to God, to the vagaries of nature or to the long waves of natural evolution, are now seen to be conditioned by human activities and result from deliberate human intervention. This perspective goes beyond the traditional international paradigm; it is closer to global, planetary or worldwide. Thus, the widened spatial perspective can well be represented by the new image of earth in outer space: earth as one world, one integrated system.

A widened spatial dimension is not enough. It must be complemented by a corresponding widening of the temporal dimension, expressed through the concept of anticipatory patterns. They concern the creation of solidarity over time, not only by relating in the traditional way the present to the past, but also as a systematic effort to relate the present to the future. Solidarity in temporal terms implies not only being attentive to the wealth of knowledge which is derived from the cultural diversity of the past, but also the creation of cultural and other patterns for the future. Thus, central to anticipatory patterns are efforts to generate alternatives and options where there did not seem to exist any at all or only insufficiently few.

Thus, together participatory and anticipatory patterns concern not only current, but also future generations all over the world. They imply new spatial and temporal responsibility.

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[6] The concepts of "participatory" and "anticipatory" approaches as used here draw their inspiration from the report to the Club of Rome entitled "No Limits to Learning" (1979).

(c) The extension of the spatial and temporal perspectives implies the extension also of other dimensions. Central is the societal perspective. In saying that higher education should establish closer links with society, what do we mean by "society"? What should be included in the concept of society? This question takes on new significance in the emerging ecological perspective. Human beings are now a planetary phenomenon with a responsibility to act as stewards of the planet and its immediate environment. In this perspective, the concept of "society" will have to be extended to encompass at least the biosphere as the foundation for all human and social life, now and in the future. This approach can be seen as related to new ideas in economics: the concept of "eco-energetic" economics implies a shift from a monetary and object-oriented focus to a focus on living systems. The economic sphere will then be seen as a specific level within the human sphere which in turn represents a dimension of the biosphere (see Passet, 1979).

The combined spatial, temporal and societal perspectives as conceived in this context, with current facts and facets of diversity and universality - the coupling of concepts that requires combination or balance.

(d) Diversity in this context refers mainly to cultural diversity, including geographical differentiation. Even on this point though there is a need for an evolutionary-historical perspective. It is the morphological and chemical diversity of organic molecules that make possible the existence of living beings.[7] This in turn suggests that genetic and cultural diversity are related. There is an increasing awareness of the need to ensure the genetic diversity as a safeguard for future ecological sustainable patterns. There is a corresponding need to safeguard cultural diversity. No single culture is in a position to formulate all relevant questions or suggest solutions to the issues that now face human beings, institutions, and societies, individually and collectively. Thus, there is a global need for cultural diversity as much as for genetic diversity and for similar reasons, to safeguard possibilities for current and future generations.

In one perspective, diversity is a universal feature of the biological trading of all living beings, not least human beings. Thus, diversity should be seen against the background of universality - if for nothing else that there are certain constants in the progression of human life - and death. This, however, is often not what is referred to through a concept such as universality which is used to denote a specific universality in the central cultural sphere, such as the general validity of certain models or paradigms of knowledge systems, their generation, credibility and legitimacy. In this approach, diversity and universality are often seen as opposed, instead of as complementary sides of the same coin. This latter approach seems to be buttressed by recent insights into human cognition. In this new approach, cognition is not seen in the traditional manner as a mirror of a pre-existing reality, but as an "inaction", a joint modelling of a shared world view through joint action in a common social creation of language and meaning.[8] This view goes against traditional attitudes by throwing overboard both symbols and representation and instead putting emphasis on cognition as an effective human action, on cognition as shared creation. Thus, in human cognition seen in this biological terms, diversity and universality are complementary.

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[7] See Maturana and Varela, 1988.

(e) New approaches to cognition form part of another perspective which has as major focus the contemporary exploration of complexity, particularly as inquiry into the behaviour of complex systems, be they natural, social or artificial.[9] New images of reality, new models and metaphors, such as those associated with the study of complex systems of behaviour point to a transition in science - and in world images. This exploration at the frontiers of knowledge has resulted in what has been called a new scientific rationality which goes beyond the classical Western linear, mechanistic, deterministic and, finally, reductionist paradigms. The transition in science suggests in the words of Nobel Laureate Ilya Prigogine, "the opening up of new theoretical space". With complexity are associated other hitherto neglected concepts such as instability, randomness, non-linearity, and a focus on non-equilibrium, open dynamical systems which permit a "new dialogue between man and nature". By including chance, possibility, self-organisation in the description of reality, there is also an emphasis on the movement between order and disorder, between rigidity and flux, and on the emergence of the unexpected, the novel, the creative - and the possibility of new significance and meaning. Consequently, these new paradigms also show an openness to other knowledge forms than those traditionally admitted in the West and thus, also an opening towards other cultural patterns.

One aspect of the new complexity paradigms is expressed in new attitudes to scientific uncertainty, to risk and the management of risk. There is even a reaction against the avoidance of disorder or its negation. It is now recognized that the obsession with order to the level or rigidity carries its own risks. The question now posed is not how to fight disorder but rather to consider which levels of disorder we are able to manage in humane and still efficient terms.

In more practical terms, the complexity approach also leads to consideration of methods of how to cope with new perceptions and realities of what has been called complex interdependence, not only of countries but also of cross-national issues. Situations of complex interdependence lead directly to problems of governance, at all levels. Increasingly, it is recognized that societies face a deep crisis of governance, as much at the local level as at the global. In fact, here we seem to be caught in a web of a paradox. On the one hand, we have great power, enough power to destroy all life on earth and even to pollute outer space with terrestrial folly. On the other hand, we seem to suffer from equally great powerlessness - despite all protestations to the contrary, we seem incapable, unable or unwilling to come to grips in a humane and equitable manner with hunger, poverty and violent conflict.

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[8] See Varela, 1988.

[9] "Complexity" is used here as a shorthand expression for a new approach to the description of reality, for new scientific paradigms arising from the study of complex systems in various fields of pure and applied science. There would seem to be, in principle, many choices among currently emerging concepts such as self-organisation or auto-poeisis, order and disorder, catastrophe or chaos but complexity seemed better to capture what appears as a consistent preoccupation in relevant fields of work.

Governance is also made more problematic and complex through new realities of vulnerability caused to a large extent by complex interdependence. Interdependence becomes problematic not only from an international perspective but as much from a national perspective. Both are affected by the kind of vulnerability which seems inherent in modern society. It goes beyond the dramatic cases of vulnerability which have been exemplified by Soveso, Bhopal or Chernobyl, or by various groups being able to hold entire societies at ransom. Vulnerability is now often a built-in property of key techno-economic systems in modern society: electricity, transport, food, sewage, and in these latter days, the indiscriminate interlocking of computerized information systems whose complexity often goes beyond comprehension and corrective action.

The preceding arguments have pointed to the need for learning - of a new and different kind than that which is based on single-discipline or single-problem approaches. There is a requirement for learning how to cope with the kind of "meta-themes" mentioned earlier. A key element here is learning how to cope with change.

We need to learn how to cope with interdependence of countries and issues, with complexity and uncertainty, with risk and vulnerability. And this is in a situation where facts are uncertain, opinions - even scientific ones - divided, values disputed, stakes high to the level of irreversibility, and rapid decisions urgent.

It is essential for higher education to focus on these learning needs of contemporary society. The panel also insisted on the need for a wide approach to the definition of aims and benefits of higher education, beyond the requirement for better qualified people, to the need for all around better human beings.

IV. Conceptual Structure for the Consideration of Specific Functions of Higher Education

Introduction

The previous discussion of contextual and general perspectives gives a background against which to set the consideration of specific functions of higher education. The framework proposed by the consideration by the panel is intended to be open-ended and with the primary purpose of serving as an entry gate into global reflection on the future of higher education. Neither examples given nor ideas proposed pretend to be exhaustive or comprehensive.

The panel members could draw, for their work, upon commissioned papers or other selected materials made available *in toto* or in draft. For certain aspects of the proposed framework, the panel found helpful the reference to a recent OECD (1987) study "The University under Scrutiny", it being understood that additions and changes were made so as to capture situations beyond the OECD context.

1. To participate in the process of legitimizing knowledge by research and teaching. In keeping with the considerations discussed above, a major and crucial function of higher education which often does not seem to be given the necessary explicit recognition concerns the role of higher education institutions in the social process of legitimizing knowledge. Whatever other functions are assigned to higher education, its "*raison d'être*" in general terms is to play a leading role in the generation and transmission of knowledge.

A specific reason for putting this function, which might appear self-evident, high on the list of higher education objectives is the need to widen the approaches to various aspects of higher education, *inter alia*, by recognizing the variety of current activities and institutions in the field, as well as the diversity of spatial and temporal dimensions for providing education at this level. In the view of the panel, no society can afford, in the present circumstances, to neglect "experiential" knowledge and other kinds of non-formally originated and transferred knowledge as a vitally important societal resource for facing the problems now confronting societies everywhere and for responding to the learning needs of individuals, groups and institutions.

2. To provide general post-secondary education for selected groups of school dropouts and, increasingly, for adults through extramural and continuing education.

The panel is of the opinion that the features that should characterize these activities are multiple and not necessarily always consistent. There is a need to strike a balance between a series of fundamental requirements, such as the striving for excellence, however defined; the need for diversity, particularly in view of providing widened access which would mean not only more learners, but also new learners. This balance will depend, to a large extent, on historical and cultural circumstances and the varying needs of societies.

Diversity of access, location and timing influence the need for diversity of methods for the transmission of knowledge, flexibility and diversity in the duration of study and learning, and also flexibility in the availability of content. This, in turn, has important implications for methods of financing and arguments about financing: financing would also become diversified, different for different parts of the system.

3. The pursuit of research and scholarship. These functions are no longer provided more or less exclusively by universities but increasingly at a diversity of institutes among which are specially important specialized research centres whether operated under the sponsorship of scientific academies or by other social institutions such as industry.

In this new situation, the panel wanted to draw particular attention to the need to keep under careful review the problem of control of knowledge through funding and other mechanisms. The panel saw a need to provide conditions for freedom to continue to do research without undue influence from either industry or government.

4. The dissemination of research results and other knowledge is a function of vital importance, in particular to many professional groups.

This function though is taking on increasing significance to members of the general public who are expected to change attitudes and behaviour in keeping with new requirements such as development objectives and environmental conditions.

As to the implementation of such dissemination, the panel wanted to draw attention to the unresolved conflict between two opposing attitudes that can be summarized as "appropriate technology" versus "the glamour of the new media".

This function was also considered in light of the desirability of maximizing knowledge-sharing as a multi-way flow between different kinds of institutions concerned with the generation and transfer of knowledge, including not only industrial corporations but also other social actors such as nongovernmental organisations of various kinds (labour unions; cooperatives, scholarly associations, etc.).

In terms of availability of and access to knowledge, members of the panel wished to draw attention to current problems of scientific publishing in the widest sense which made access both difficult and problematic, particularly in developing countries. The panel noted that there are counterproductive effects of even legitimate commercial practices on the international exchange of resources and people. Attention was also drawn to the need to follow closely the current negotiations on trade in services undertaken under the GATT sponsorship and defend, in this respect, the interests of higher education in particular and education in general. In this context, it would also be important to keep under review the effects of moving knowledge from one knowledge structure to another. Since data banks are often produced by large companies for profits, the quality of filters and gate keepers tend to be determined by the value systems and interests of the data bank owners; there is a danger that what is not in the data banks might begin to be considered as non-knowledge.

5. A further function of higher education is to assist in fulfilling the manpower needs of what had been called the "expert society". A specific aspect of this function is to provide high level, specialized training for future members of the academic profession.

A major problem in this area was seen as the conflict between the "right to education" as laid down in basic human rights documents and what is seen as the duty and need to train for employment. In one perspective, this amounts to a conflict between human resource approach and a job-oriented approach. Even if this problem can be solved there remains the issue of whether people should be entitled to training even if there are no jobs in a given field. According to the human resource approach, the answer would be yes; in terms of a job-oriented approach the reply would be less clearcut. In the panel, there was no agreed position in absolute terms, rather that solutions would have to be sought in terms of the diverse conditions and requirements in different societies.

6. There is increasing pressure on institutes of higher education to assist, through research and training, the competitive edge of national economies. These institutions are consequently expected to encourage innovation and creativity in this perspective and show how research results can be applied and yield returns.

The panel considered this function as problematic. From one angle, this function seems to embody in acute form the dichotomy that has been summarized in the opposition between "technology and the arts". Seen from another angle, there is a clash between national interest defined in almost exclusively economic terms and the universality and internationalism that has traditionally characterized many disciplines and professions and is at the core of academic ethos. "Academia and economic imperatives, by no means, always point in the same direction." (OECD, 1985)

This function is also related to the complex and vexing problem of proprietary rights in scientific knowledge and information.

7. Institutions of higher education also act as screening and certification mechanisms. This concerns particularly those who will seek high level employment in public service, industry or the professions. The screening mechanisms are in turn related to the function of providing an avenue of social mobility for those groups in society that have traditionally not been involved in higher education.

Since various methods are used for this screening function, the panel felt it important to analyze the objectives of different screening mechanisms and also what alternatives exist for which purpose. There is also a need to elucidate to which extent higher education serves as a main route in society for social mobility.

It was noted that the relation between social mobility and the readiness to participate in formal education is complex and ambiguous. Different examples were mentioned from Portugal to India, of whole areas of higher education not being recognized by the formal institutions of higher education and thus are located outside the formal system. At the individual level, there are expressions of disinterest in higher education, for a variety of reasons ranging from economic analyses to reactions against the claims by formal institutions on exclusive competence. This, in turn, relates back to the previously mentioned questions of what constitutes useful knowledge and who resolves this issue.

8. Institutions of higher education are expected to offer a variety of services to their community and region. Governments have encouraged the distribution of such institutions across national territories, in various settings whether in smaller and comparatively homogeneous countries (such as Sweden) or in large geographically, culturally and ethnically diverse countries (such as India).

Community services would, in the panel's view, often and to a large extent, concern the transfer of non-formal knowledge and skills. Of special importance would be the contributions of institutes of higher education in the area of non-formal education, particularly in developing regions such as Africa. It was noted that vocational training could learn much from the methods used to transfer craft skills which many times seem to lie closer to this kind of activity than higher education.

9. One further function of higher education is seen as the transmission of cultural values and "standards of citizenship" including certain national policies such as equal opportunities for women and racial minorities. A related function is seen in terms of preparing men and women for leadership roles in

society: in public life, the professions and, increasingly, industry and commerce.

The cultural dimensions have been of particular concern to the panel all through the discussions, as reflected in the previous sections.

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